"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

Ignition of Discharges in the Non-uniform Fields at Low Gas Pressures

and the curves were taken for various depths h of the lower channel. The curves illustrating the breakdown voltages of configurations IV and V are given in Figures 5. From the investigation, it is concluded that, in non-uniform fields, when the two electrodes have a different shape, the breakdown voltage is strongly dependent on the polarity. Secondly, the breakdown voltage is determined not by the longest distance between the electrodes but by the length of that path which meets the condition of the self-maintenance of the discharge. The electrical strength of the discharge gap, as the pressure is reduced, is limited by the field-emission phenomena which appear at the cathode when the field reaches E=200-500 kV/cm.
There are 5 figures and 5 Soviet references; one of the references is translated from English.

Card 3/4

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

SOV/109-4-8-6/35

Ignition of Discharges in the Non-uniform Fields at Low Gas Pressures

ASSOCATION: Vsesoyuznyy elektrotekhnicheskiy institut im. V.I. Lenina (All-Union Electrotechnical Institute imeni V.I. Lenin)

SUBMITTED: March 5, 1959

Card 4/4

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

GUSEVA, L.G.

24,3130 SOV/109-4-8-22/25
AUTHORS: Granovskiy, V.L., Luk'yanov, S.Yu., Spivak, G.V. and Sirotenko, I.G.

TITLE: Report on the Second All-Union Conference on Gas Electronics

PERIODICAL: Radiotekhnika i elektronika, 1959, Vol 4, Nr 8, pp 1339 - 1358 (USSR)

ABSTRACT: The conference was organized by the Ac.Sc.USSR, the Ministry of Higher Education and Moscow State University. It was opened by the chairman of the organizing committee, M.A. Leontovich, Academician. During the plenary sessions of the conference, a number of survey papers were delivered. L.A. Artsimovich read a paper on "Production of Ultra-high Temperatures in Plasma".
A survey of the optical method of measurements was given in the papers by V.A. Fabrikant and S.E. Frish.
S. Brown of the Massachusetts Institute of Technology gave a survey of the high-frequency methods of the investigation of stationary and non-stationary plasma (see p 1244 in this issue of the journal).
N.V. Fedorenko read a paper entitled "Ionization and Inelastic Scattering During Atomic Collisions".

Card1/3 L.A. Sena and Ya.M. Kagan deal with "Elementary Processes of Determining the Motion of Ions in Gas".
A paper by Ye. Badareu (Rumania) dealt with "The Role of Resonance-Recharging in the Kinetics of Ions".
I.S. Stakhanikov considered the initial stages of the development of sparks (corona-leader, main channel and the final channel).
B.M. Klyarfel'd gave a survey of the ignition processes of the discharges in highly rarified gases.
The mechanism of the breakdown of a high-vacuum gap was elucidated in a paper by V.L. Granovskiy.
L. Tonks (USA) expounded a theory of the motion of electrons in a magnetic trap (see p 1316 of this journal).
Academician H. Kopp (Eastern Germany) described a number of experiments on non-stationary plasma conducted by himself.
M. Steenbeck (Eastern Germany) gave a generalized theory of plasma. The conference was divided into six sections.
The first section was presided over by L.A. Sena and was concerned with the elementary processes in gas discharges.
The following papers were read in this section:
Ya.M. Fogel'- "Transformation of Positive Ions Into Negative Ones in Rarified Gases".
Ya. M. Fogel' with V.A. Ankudinov and D.V. Pilipenko - "Capture and Loss of Electrons During the Collision of Fast Atoms of Carbon and Hydrogen with the Molecules of Gases".
N.V. Fedorenko et al. - "Dissociation of Molecular Ions of Hydrogen During Collisions in Gas".
I.P. Flaks and Yu.I. Solov'yev - "Capture Cross-sections of Electrons in Multicharge Ions in Inert Gases".
B.M. Kushnir et al. - "Experimental Investigation of the Resonance Recharging in Certain Single-atom Gases and Metal Vapours".
O.B. Firsov - "Qualitative Investigation of Inelastic Collisions of Atoms".
L.M. Volkova - "Effective Excitation Cross-sections of the Spectral Lines of Potassium and Argon".

Card2/3 L.P. Zapesochnyy and I.M. Kishko "Some Results of the Investigation of the Optical Functions of the Excitation Bands of a Negative System".
A.A. Vorob'yev and A.G. Vlasov - "Investigation of the Scattering of the Electrons in a Betatron Chamber".
The second section was presided over by B.N. Klyarfel'd and was devoted to the problems of the electrical breakdown in rarified gases and in high vacuum. The following papers were read in this section:
G.Ye. Maker-Limanov and Yu.A. Nettitskiy - "Electrostatic Control of the Ignition of Glow-discharge Tubes"(see p 1274 of the journal).
E.V. Pritsyn et al. were concerned with the breakdown in a high-voltage mercury rectifier (see p 1270 of the journal).

I.G. Guseva "Ignition of the Discharge in Non-uniform Fields at Low Gas Pressures" (see p 1260 of the journal).
A.I. Soboleva and B.N. Klyarfel'd - "The Discharge Phenomena Between a Point and a Plane at Gas Pressures of 10^{-3} - 1 mm Hg".

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

AP4010309

B/0048/64/028/001/0141/0146

AUTHOR: Guseva, L.G.

TITLE: Influence of individual elementary processes on the characteristics of high voltage discharges [Report, Second All-Union Conference on the Physics of Electronic and Atomic Collisions held in Ushgorod, 2-9 Oct 1962]

SOURCE: AN SSSR, Izvestiya. Seriya fizicheskaya, v.28, no.1, 1964, 141-146

TOPIC TAGS: high voltage discharge, discharge mechanism, electric breakdown, restitution coefficient, electron production, ionization, electron reflection, multiple ionization, electron multiplication

ABSTRACT: Many aspects of the mechanism of high voltage discharges is still obscure. It is often assumed that only two processes are significant where ignition of a discharge under the conditions corresponding to the left-hand branch of the Paschen curve are concerned, namely, ionization of the gas in the gap by primary electrons and gamma processes on the cathode. However, analyses carried out by the author indicate that these two processes alone do not satisfactorily explain the behavior of high voltage discharges. There must also be considered the contribution

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from ionization by positive ions, charge exchange, additional ionization produced by electrons reflected from the anode and by electron ejected from the atoms of the gas in the process of primary ionization. The probable roles of these different processes in high voltage discharges are estimated by evaluating the electron restitution (multiplication) coefficients associated with these processes. Specifically, calculations are carried out for the coefficients connected with the ionization of the gas by the primary electrons, the ionization produced by electrons released from atoms ionized by primary electrons and ionization produced by electrons reflected from the anode. The values of the calculated electron restitution coefficients are tabulated for the cases of high voltage discharges in nitrogen and mercury vapor. It is concluded that the production of new electrons in the discharge gap due to reflection of electrons from the anode is often comparable to and sometimes greater than the effect of primary electrons. The fact that the effect of reflection of electrons from the anode may be significant in the ignition of high voltage discharges is also indicated by studies of the influence of the material of the anode on the breakdown voltage. "The author is grateful to Prof.B.N.Klyarfel'd for valuable advice and suggestions in the course of carrying out the investigation."
Orig.art.has: 7 formulas, 3 tables and 2 figures.

Card 2/3

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

AP4010309

ASSOCIATION: Vsesoyuzny*y elektrotekhnicheskiy institut im.V.I.Lenina (All-Union Electric Engineering Institute)

SUBMITTED: 00 DATE ACQ: 10Feb64 ENCL: 00

SUB CODE: PH NR REF SOV: 005 OTHER: 007

Card 3/3

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

L 41242-65 EWT(1)/EPA(s)-2/EWT(m)/EPF(c)/EPF(n)-2/EPR/EPA(w)-2/EEC(t)/EWP(t)/EWP(b)/EWA(m)-2 Pab-10/Pr-4/Ps-4/Pu-4 IJP(c) JD

ACCESSION NR: AP5005233 S/0057/65/035/002/0306/0311

AUTHOR: Klyarfel'd, V.N.; Gusova, L.G.

TITLE: On the nature of the positive current-voltage characteristic of a low pressure electric discharge

SOURCE: Zhurnal tekhnicheskoy fiziki, v.35, no.2, 1965, 306-311

TOPIC TAGS: gas discharge, glow discharge, plasma, low pressure discharge, helium, argon

ABSTRACT: High voltage discharges in helium and argon between plane carbonized iron electrodes were investigated experimentally and the results for helium at 0.08 mm Hg with 8 cm electrode separation are presented graphically. At low currents the potential remained constant at 4.6 kV, but when the current reached a certain threshold the potential increased and plasma could be observed in the vicinity of the anode. With further increase of current the plasma layer became thicker and the potential continued to rise. This increase in potential is ascribed to the effective decrease in the length of the discharge gap as more of the interelectrode space becomes occupied by essentially equipotential plasma. The thickness of the

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L 41242-65
ACCESSION NR: AP5005233

plasma at the anode and the potential drop were measured as functions of the pressure for fixed current and electrode spacing. From the resulting curves the ratio of the ion current to the electron current was estimated and found to be small. From this it is concluded that the high voltage discharge with plasma at the anode and the anomalous glow discharge are "qualitatively identical", differing only in the ratio of the ion to the electron current. As this ratio increases the potential drop approaches a limiting value. This is ascribed either to recombination in the negative glow plasma or to a shift of the position of maximum potential in the anode plasma toward the region of the cathode drop. "V.V.Vlasov, A.Ye.Kulikov and I. Z.Shapiro participated in the experimental portion of the work." Orig.art.has: 4 figures.

ASSOCIATION: Vsesoyuznyy Elektrotekhnicheskiy institut im.V.I.Lenina (All-Union Electrotechnical Institute)

SUBMITTED: 30Apr64 ENCL: 00 SUB CODE: ME,EM

NR REF SOV: 003 OTHER: 004

ko
Card 2/2

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

L 28485-66 EWT(1)/EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AP6013126 SOURCE CODE: UR/0057/66/036/004/0704/0713

60
57
B

AUTHOR: Klyarfel'd, B.N.; Guseva, L.G.; Pokrovskaya-Soboleva,A.S.

ORG: All-Union Electrotechnical Institute im. V.I.Lenin,Moscow (Vsesoyuznyy elektrotekhnicheskiy institut)

TITLE: Glow discharge at low pressures and current densities up to 0.1 A/cm^2

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 4, 1966, 704-713

TOPIC TAGS: glow discharge, hydrogen, nitrogen, neon, argon, gas discharge,plasma,

ABSTRACT: Current-voltage characteristics of glow discharges between plane parallel electrodes in H_2, N_2, Ne, and Ar have been measured at voltages from 0.2 to 30 KV, currents from 10^{-9} to 10 A, and values of the pd product (pressure times electrode distance) corresponding to the left-hand branch, the minimum, and a portion of the right-hand branch of the Paschen curve. The diameter of the electrodes was always greater than the distance between them, and care was taken to assure purity of the gases and to avoid distortion of the curves due to thermal effects. The high current discharges were pulsed, the data being recorded on the fall of the pulse. Measurements at intermediate currents by both the pulse and continuous techniques gave concordant results. Many of the recorded current-voltage characteristics are presented graphically, and they are discussed at some length. Glow discharges are classified into three groups, for which there are proposed the following designations: Simple

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ACC NR: AP6013126

(or Simplest) Glow Discharge; Dense Glow Discharge; and Normal Glow Discharge. The simple glow discharges comprise the Townsend discharge; which is thus regarded as a kind of glow discharge, and the high voltage discharge; they are characterized by absence of space charge between the electrodes and a potential that is independent of the current over a very wide range. The dense glow discharges are characterized by increase of the voltage with increasing current, decrease of the voltage (at constant current) with increasing value of the pd product, and the presence beyond the cathode fall region of plasma, the potential of which is close to that of the anode and which exhibits a typical negative glow. In the normal glow discharge the potential is almost independent of the value of the pd product, the current density at the cathode is nearly independent of the current (and not proportional to it as in the simple and dense glow discharges), and a negative glow plasma fills only part of the inter-electrode region. As the current is increased at low pressures a simple glow discharge passes directly into a dense glow discharge; at higher pressures there is an intermediate range in which the glow discharge is normal. It is suggested that it may prove necessary to introduce further new terms to describe the still insufficiently investigated glow discharges for values of the pd product exceeding 100 mm Hg x cm. V.V. Vlasov, A.Ye.Kulikov, and A.T.Pavlova participated in the experimental work. Orig. art. has: 7 figures.

SUB CODE: 20 SUBM DATE: 16Jul65 ORIG. REF: 005 OTH REF: 008

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

L 44005-66 EWT(l)/EWT(m)/T DS

ACC NR: AP6018746 SOURCE CODE: UR/0057/66/036/006/1140/1143

AUTHOR: Udris, Ya. Ya.; Guseva, L. G.; Chernov, V. A.

ORG: All-Union Electrotechnical Institute im. V. I. Lenin, Moscow (Vsesoyuznyy elektrotekhnicheskiy institut)

TITLE: On some properties of a high voltage hollow anode glow discharge

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 6, 1966, 1140-1143

TOPIC TAGS: glow discharge, electric discharge, electrode, hollow anode, air, inert gas

ABSTRACT: The authors have investigated high voltage (3 to 25 kV) glow discharges in air and different inert gases at pressures from 0.001 to 0.1 mm Hg and currents from 0.0001 to 1 A between 6 to 35 cm diameter plane cathodes and plane or hollow anodes of the same diameter (the hollow anodes were from 15 to 100 cm deep). The current distribution on the plane end of a hollow anode was the same as on a plane anode, thus confirming the conclusion of G. W. McClure (Phys. Rev., 124, 696, 1961) that the glass tube confining the discharge in the case of plane electrodes becomes charged to approximately the anode potential and so gives rise to conditions approximating those within a hollow anode. The discharge current was found to be focused onto the central portion of the plane end of the hollow anode. The current to the cathode surface, on the other hand, was not concentrated in the central region of the electrode, the

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ACC NR: AP6018746 2

current density was actually somewhat lower in the center of the cathode than at some distance from the center. The focusing of the current on the anode and its defocusing on the cathode were enhanced by a longitudinal magnetic field. The enhancement of the current focusing due to the field of a short solenoid depended strongly on the axial position of the solenoid. Particles were withdrawn from the discharge region through holes in the electrodes. Difficulty was experienced with discharges through the openings in the electrodes when the pressure in the regions beyond the electrodes was the same as in the interelectrode region, but such discharges could be avoided by maintaining a low pressure in the regions beyond the electrodes. From measurements of the particles withdrawn from the discharge region through holes in the electrodes it was concluded, in agreement with the findings of McClure (loc.cit.) and D.Kamke and F.W.Richter (Ann. d. Phys., 10, 360, 1963), that 75-80% of the energy of the hollow anode discharge is carried by the electron current to the anode. The authors thank V.L.Granovskiy (deceased) and B.N.Klyarfel'd for valuable advice and discussions. Orig. art. has: 3 figures.

SUB CODE: 20,09/ SUBM DATE: 22Oct65/ ORIG.REF: 003/ OTH REF: 002

Card 2/2 dlo

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

1. GUSEVA, L.I.

2. USSR (600)

4. Moths

7. Some data on the biology of the moth, a raw fur pest. Trudy VNIO. no. 10, 1951.

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

NESMEYANOV, A.N.;GUSEVA, L.I.;TIKHONOVA, L.I.;ZABORSKIY, A.K.

Chemical state of atoms resulting from nuclear transformations.
Dokl.AN SSSR 103 no.6:1041-1043 Ag '55. (MLRA 9:1)

1.Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
Predstavleno akademikom A.N.Frumkinym.
(Radiochemistry)

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

GUSEVA, L. I.

Category : USSR/Nuclear Physics - Structure and Properties of Nuclei C-4

Abs Jour : Ref Zhur - Fizika, No 2, 1957 No 3216

Author : Guseva, L.I., Filippova, K.V., Gerlit, Yu.B., Druin, V.A., Myasoyedov, B.F., Tarantin, N.I.

Title : Experiments on Obtaining En and Fm with a Cyclotron.

Orig Pub : Atom. energiya, 1956, No 2, 50-54

Abstract : Report of production of transplutonian elements by bombarding U with nuclei of N and O. Quintupli-charged ions of N and sextuple-charged ions of O were accelerated with a cyclotron having a magnet with pole diameters of 150 cm. The transplutonian elements were separated by the fluoride method using La as a carrier. The half lives and the energies of the α particles were measured with the aid of photographic plates and an ionization chamber with a spherical electrode. The quintuple-charged ions of N were obtained in a specially developed slit-type source. The energy of the N ions at the maximum radius was 105 Mev, and the ion current was 5×10^{-7} amp. Irradiation of U by N ions produced the isotope En^{247}, identified by the value of T and by the energy of the α particles. Sextuple-charged O ions were obtained by "stripping" double-charged O ions on molecules of the residual gas in the cyclotron

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

Category : USSR/Nuclear Physics - Structure and Properties of Nuclei C-4

Abs Jour : Ref Zhur - Fizika, No 2, 1957 No 3216

chamber. The maximum energy of the accelerated sextuple-charged ions of O at the maximum radius was 120 Mev. The current of ions with energies exceeding 100 Mev was 3×10^{-9} amp. The isotope Fm was obtained by exposing U to ions of O and was identified by the value of T and by the energy of the α particles. Several hundreds of atoms each of isotopes of Cf, Bk, and Cm were separated by the chromatographic method.

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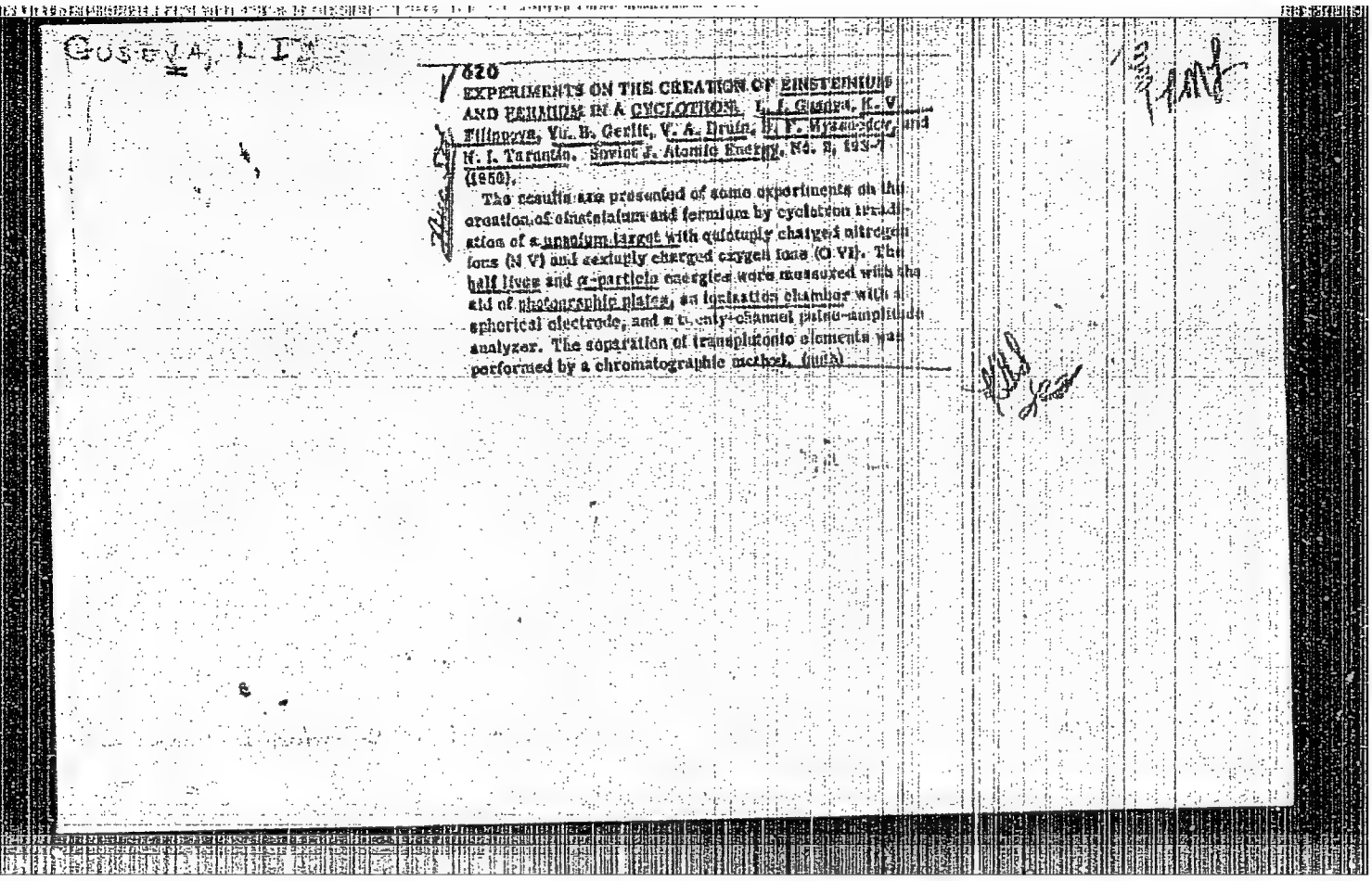

GUSEVA, L. I.

620
EXPERIMENTS ON THE CREATION OF EINSTEINIUM AND FERMIUM IN A CYCLOTRON. L. I. Guseva, K. V. Filinova, Yu. B. Gerlit, V. A. Druin, B. F. Myasoedov, and N. I. Tarantin. Soviet J. Atomic Energy, No. 2, 193-7 (1956).

The results are presented of some experiments on the creation of einsteinium and fermium by cyclotron irradiation of a uranium target with quintuply charged nitrogen ions (N V) and sextuply charged oxygen ions (O VI). The half lives and α-particle energies were measured with the aid of photographic plates, an ionization chamber with a spherical electrode, and a twenty-channel pulse-amplitude analyzer. The separation of transplutonic elements was performed by a chromatographic method. (auth)

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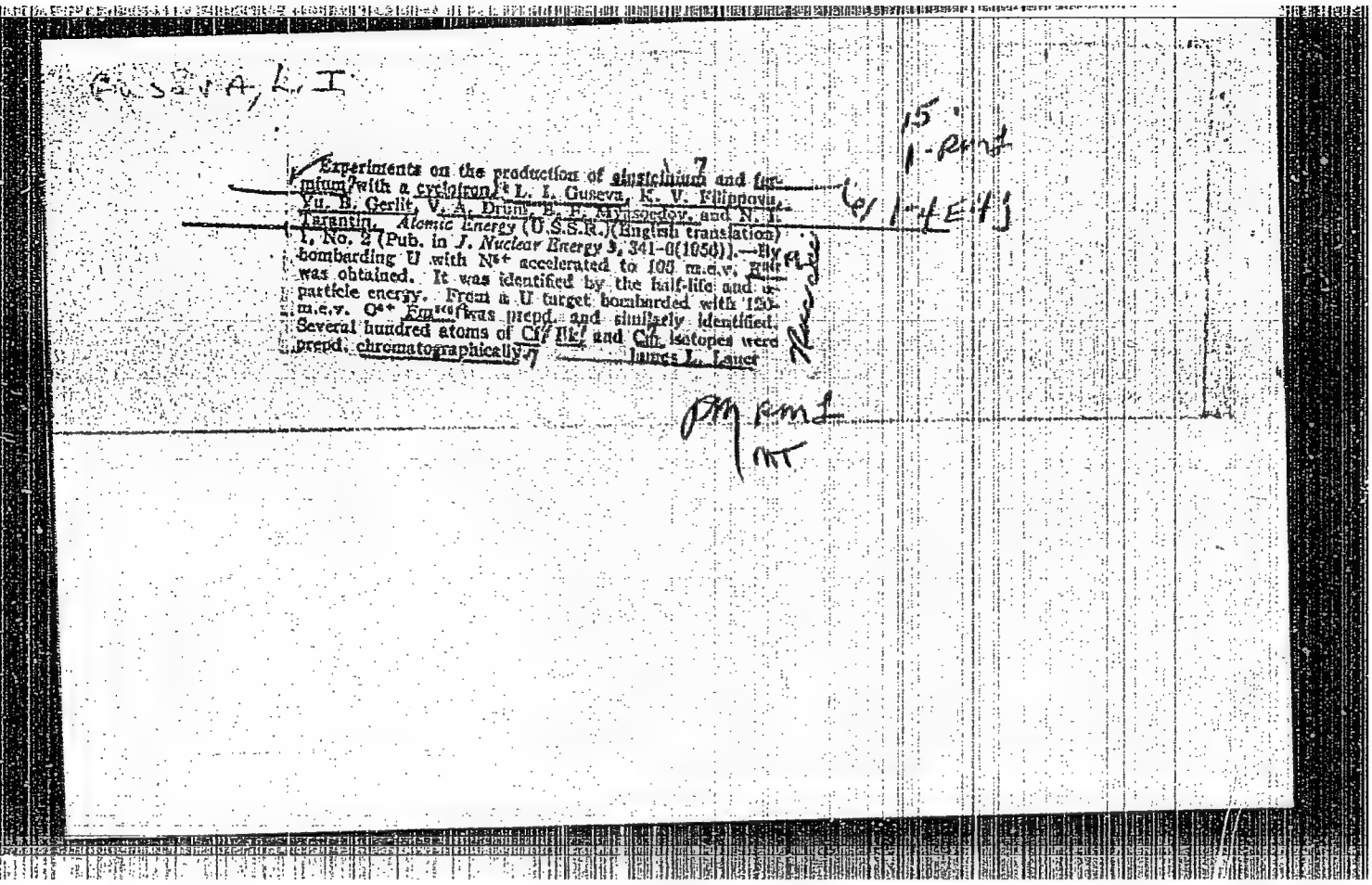

Guseva, L. I.

15
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Experiments on the production of einsteinium and fermium with a cyclotron. L. I. Guseva, K. V. Filippova, Yu. B. Gerlit, V. A. Druin, E. F. Myasoedov, and N. I. Tarantin. *Atomic Energy* (U.S.S.R.) (English translation) 1, No. 2 (Pub. in *J. Nuclear Energy* 3, 341–6(1956)).—By bombarding U with N^{14+} accelerated to 108 m.e.v., $_{99}E^{247}$ was obtained. It was identified by the half-life and α-particle energy. From a U target bombarded with 125 m.e.v. O^{16+} $_{100}Fm^{250}$ was prepd. and similarly identified. Several hundred atoms of $_{98}Cf^{246}$ and $_{98}Cf^{248}$ isotopes were prepd. chromatographically. James L. Lamet

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

GUSEVA, L. I., FILIPPOVA, K. V., FLEROV, G. N., GARIBT, Yu. B., MYASNIKOV, B. F. and TARANTIN, N. I. (Acad. Sci. USSR)

"Mass Distribution of Fission Fragments Formated by Nitrogen Ions on Gold and Uranium Nuclei,"

paper submitted at the A-U Conf. on Nuclear Reactions in Medium and Low Energy Physics, Moscow, 19-27 Nov 57.

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

GUSEVA, L.I.

56-2-4/47

AUTHOR: GERLIT, Yu.B., GUSEVA, L.I., MYASOYEDOV, B.F., TARANTIN, N.I., FILIPPOVA, K.V., FLEROV, G.N.

TITLE: Yield of Californium Isotopes Produced in the Interaction between Carbon Isotopes and Uranium Nuclei
(Vykhody izotopov kaliforniya v reaktsiyakh vzaimodeystviya ionov ugleroda s yadrami urana. Russian)

PERIODICAL: Zhurnal Eksperim. i Teoret. Fiziki 1957, Vol 33, Nr 2 (8), pp 339 - - 342 (U.S.S.R.)

ABSTRACT: In a 67 cm cyclotron four-fold charged carbon ions are accelerated up to 90 MeV. With this energy they impinge upon a thick uranium target and cause the reaction U(C, n)Cf. The absolute yields per impinging carbon ion and the following reactions are:

$$U^{239}(C^{12}, 4n)\,Cf^{246} \qquad 1{,}5 \cdot 10^{-9}$$

$$U^{239}(C^{12}, 5n)\,Cf^{245} \qquad \sim 3{,}0 \cdot 10^{-9}$$

$$U^{239}(C^{12}, 6n)\,Cf^{244} \qquad \leqslant 9 \cdot 10^{-11}$$

The fissioning of uranium bombarded with carbon was found to be $3{,}8 \cdot 10^{3}$ times more probable than the evaporation process of neutrons from the intermediary nucleus Cf^{250}.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

Guseva L. I.

AUTHORS: Tarantin, N. I., Gerlit, Yu. B., Guseva, L. I., 56-2-7/51
Myasoyedov, B. F., Filippova, K. V., Flerov, G. N.

TITLE: The Mass Distribution of Fission Products Produced by the Irradiation of Gold and Uranium by Nitrogen Ions (Raspredeleniye po massam produktov deleniya, obrazuyushchikhsya pri obluchenii zolota i urana ionami azota)

PERIODICAL: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1958, Vol 34, Nr 2, pp 316-321 (USSR)

ABSTRACT: The present work investigates the mass spectrum of the fission fragments of radon and einsteinium which are formed in the irradiation of gold and uranium with nitrogen ions. First the experimental method is discussed. Gold- and uranium plates of a thickness of 30 μ were irradiated with five-times charged nitrogen ions from a slit source at the inner ray of an 150 cm cyclotron. The energy of the nitrogen ions was 115 MeV. After the dissolution of the irradiated target the different radioactive elements on the corresponding carriers were dissolved. The radioactive

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isotopes were identified according to their half life. The relative yields of the nuclei identified this way are listed in a table. A diagram shows the yields of the nuclei given in this table as a function of the mass number A. The main part of the yield of fission products is concentrated within a comparatively narrow interval of mass numbers. The yield of fission fragments increases rather greatly with an increase of the mass number from 7o to 1oo, and with still greater mass numbers it decreases to the same extent. From the experimental values of the yields of single nuclei the total yields of the corresponding mass series (massovaya tsepochka) were computed. The additional taking into account of the yields of nuclei not identified in these experiments changes only little the character of the distribution of experimental points. The curve of the distribution of fission fragments in relation to the mass with the values A = 85 to 115 has the shape of a narrow peak with a half width of about 2o mass units. The yields of $Ga^{72,73}$, Se^{123}, Sb^{122} and the yields of the series of decays corresponding to these nuclei do not coincide with the monotonous course of the curve and are a little greater as normal. About 2o

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

The Mass Distribution of Fission Products Produced by the Irradiation of Gold and Uranium by Nitrogen Ions 56-2-7/51

different isotopes were identified among the fission products forming in the irradiation of uranium with nitrogen ions. The yields of the accumulated nuclei are collected in a table. The fission of nuclei under the action of heavy particles can be represented by the following scheme: Formation of a compound nucleus, emission of neutrons and fission. The half width of the curve of the distribution of fission fragments on the mass is considerably smaller in the fission of radon than in the fission of einsteinium. There are 2 figures, 2 tables, and 1o references, 4 of which are Slavic.

SUBMITTED: August 2o, 1957

AVAILABLE: Library of Congress

1. Gold-Irradiation 2. Uranium-Irradiation 3. Nitrogen ions-Applications 4. Isotopes-Determination

Card 3/3

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

GUSEVA, L.I. (Moskva); OVECHKIN, B.I. (Moskva)

Atomic X-ray scattering on solid solutions of copper and nickel.
Izv. AN SSSR. Otd. tekh. nauk Met. i topl. no.2:82-85 Mr-Ap '59.
(MIRA 12:6)

(X rays--Scattering) (Copper-nickel alloys--Metallography)

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

SOV/78-4-9-38/44

5(2)
AUTHORS: Grigor'yev, A. T., Guseva, L. I., Sokolovskaya, Ye. M., Maksimova, M. V.

TITLE: On Polymorphous Transformations of Chromium in Alloys With Tantalum

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 9, pp 2168-2169 (USSR)

ABSTRACT: The cooling curve for liquid chromium determined by N. A. Nedumov (Ref 4) exhibits, in the vicinity of the very distinct maximum corresponding to the crystallization temperature, a second maximum which relates to the transition of chromium into another modification at 1815°. By means of microscopic, thermal, and X-ray analyses the chromium-tantalum alloy was investigated in the range rich in chromium after hardening; The location of the solidus and the limits of solubility of Ta in Cr were checked. 1830° was found to be the temperature of transition between the modifications ε and δ. In contrast with the data obtained by N. Grant (Refs 1, 2) it was found that immediately after freezing chromium does not possess a face-centered but a cubic body-centered

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crystal lattice, which is in agreement with the fact that a continuous series of solid solutions of chromium and σ-iron form. There are 1 figure and 4 references, 1 of which is Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova Kafedra obshchey khimii (Moscow State University imeni M. V. Lomonosov, Chair of General Chemistry)

SUBMITTED: January 12, 1959

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

21(7) SOV/56-36-3-17/71

AUTHORS: Volkov, V. V., Guseva, L. I., Pasyuk, A. S., Tarantin, N.I., Filippova, K. V.

TITLE: The Production Cross Sections for Californium Isotopes by the Irradiation of U^{238} With Accelerated Carbon Ions (Secheniya obrazovaniya izotopov kaliforniya pri obluchenii U^{238} uskorennymi ionami ugleroda)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 3, pp 762-765 (USSR)

ABSTRACT: In the course of the irradiation of heavy elements with multicharged ions compound nuclei are formed, which decay again as the result of fission or neutron evaporation. Important conclusions may be drawn with respect to new transuranium synthesis from the ratio of the two decay processes in dependence on the excitation energy and the parameters of the compound nucleus. In the present paper results obtained concerning the energy dependence of the cross sections of the reactions

$U^{238}(C^{12}, 4n - 5n)Cf^{246-245}$

$U^{238}(C^{13}, 5n - 6n)Cf^{246-245}$ (cf. also references 1-3)

are discussed. The $^{+4}C^{12}$- and $^{+4}C^{13}$-ions were accelerated on

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The Production Cross Sections for Californium Isotopes by the Irradiation of U^{238} With Accelerated Carbon Ions

the 150 cm cyclotron of the AS USSR up to 78 and 84 Mev respectively (with an accuracy of 3%). Energy measurement was carried out by absorption in aluminum, measurement of the ion flux on the target was carried out by means of an integrator (0.2 - 0.3 μa). The results obtained by these measurements are given in figures 1 and 2 in form of diagrams. Figure 3 shows the cross section of the reactions (C^{12}, 4n - 5n) and (C^{13}, 5n - 6n) referred to the total production cross section for the compound nucleus in dependence on excitation energy. Each of the curves shows a characteristic maximum. The shifting of the maximum of the reaction (C^{12}, 5n) towards that of the reaction (C^{13}, 5n) is assumed to be due to an inaccuracy of ion energy measurement. For the connection between the decay probabilities and the cross sections it holds that $\sigma_n = \sigma_t(\overline{W}_n/(\overline{W}_n + \overline{W}_f))^n$

σ_n = total cross section of the neutron emission reaction in the case of a given energy. σ_f = cross section for the formation of a compound nucleus at the same energy. n = average number

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

The Production Cross Sections for Californium Isotopes by the Irradiation of U^{238} With Accelerated Carbon Ions

of emitted neutrons. W_n = probability of neutron emission. W_f = fission probability; ($\overline{W}$ denotes the mean value) $\overline{W}_n/\overline{W}_f$ for californium is $\sim 1/4$ and varies only little in the interval of the excitation energy of 35 - 55 Mev. W_n/W_f for Cf^{246}(4n - 5n) is $\sim 1/2$ and for Cf^{246}(5n - 6n) $\sim 1/3$.

The authors finally thank Professor G. N. Flerov for supervising work, and they also thank the cyclotron team under Yu. M. Pustovoyt and L. K. Tarasov for their collaboration in the chemical part of this work. There are 3 figures and 9 references, 5 of which are Soviet.

SUBMITTED: September 16, 1958

Card 3/3

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

GUSEVA, L.I.; MYASOYEDOV, B.F.; TARANTIN, N.I.; FILIPPOVA, K.V.

Cross sections of the formation of Cm^{240} by the radiation of Th^{232} with C^{12} and C^{13} ions. Zhur.eksp.i teor.fiz. 37 no.4: 973-977 O '59. (MIRA 13:5)

(Curium--Isotopes) (Thorium--Isotopes)
(Carbon--Isotopes)

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

GUSEVA, L.I.

Obtaining female lines of cucumbers. Sbor. trud. asp. i mol. nauch. sotr. VIR no.5:111-113 '64. (MIRA 18:3)

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

Guseva, L.I.

8

Coprecipitation of nickel, manganese, thallium, and zinc with the metal sulfides of the hydrogen sulfide group. I. Alimarin, N. A. Rudnev, and L. I. Guseva. *Primenenie Mechenykh Atomov v Anal. Khimii. Akad. Nauk S.S.S.R., Inst. Geokhim. i Anal. Khim.* 1955, 18-23; cf. *C.A.* 47, 4698a.—Copptn. of these metals with members of the IV and V groups was studied with the aid of Mn^{56}, Ni^{65}, Zn^{65}, and Tl^{204}. Pptn. with H_2S was carried out in 0.3*N* acid solns. In the solns. contg. Ni there was 101 γ Ni and the Ni:M ratio was 1:58. The Mn solns. contained 111 γ Mn and the Mn:M ratio was 1:49. Ni and Mn copptd. only slightly with the sulfides, except in the cases of Bi_2S_3 and SnS_2 where copptn. of Ni was 1.24 and 2.86%, resp., and HgS and SnS_2 where copptn. of Mn was 1.6 and 1.5, resp., in the Tl-contg. solns. There was 2.90 γ and the Tl:M ratio was $1:6.95 \times 10^5$. Copptn. in these solns. was very high; copptn. was smallest with Ag_2S (28.0) and highest (96.0%) with HgS in solns. where the mol. ratio of Tl:M was 1:1 copptn. was appreciably smaller; in these solns. copptn. was smallest (1.9 and 2.0% with HgS and Ag_2S, resp.) and highest (48.2%) with As_2S_3. The Zn solns. contained 560 γ of Zn and the Zn:M ratio was 1:12. When the H_2S was passed at the same rate as in the other expts. (50-60 bubbles/min.) copptn. of Zn was small and reached 7% with CdS and 10% with SnS_2. When the rate of H_2S passing was raised to 500 cc./min. the copptn. of Zn went up from 7.0 to 56.6% with CdS, from 10.0 to 47.7% with SnS_2, from 0.8 to 43.2% with HgS, and from 0.4 to 11.1% with Bi_2S_3. Copptn. with CuS, PbS, Ag_2S, As_2S_3, and Sb_2S_3 remained unaffected. Delay between pptn. and filtering caused more Zn to be pptd. with CdS. In changing the acidity between 0.05 and 0.4*N* the amt. of Zn copptd. with CdS and SnS_2 dropped with increasing acidity. M. Hoch.

(2)

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

GUSEVA, L.I.

Sorption of some surface-active dyes by sulfides in the course of their aging. N. A. Rudnev and L. I. Guseva (V. I. Vernadskii Inst. Geochem. and Anal. Chem., Acad. Sci. U.S.S.R., Moscow). *Zhur. Anal. Khim.* 11, 44-54 (1956).—The adsorption of a dye (neutral red) by freshly pptd. and aged metal sulfides was studied with the view of elucidating the structure of sulfide ppts. and the changes that they may undergo with time. Into a 150-ml. flask were added a soln. of the metal salt in such a quantity that the sulfide ppt. would be 0.1 g., HCl (1:1) to make it 0.3*N*, 10 ml. of 0.5% soln. of neutral red, and H_2O to a total vol. of 100 ml. The flask was placed in a thermostat at 28°, and after 10 min. H_2S was passed for 5 min. at approx. 500 cc./min. To the flask was then added 10 ml. H_2O satd. with H_2S and shaken for 20 min. After definite time intervals 3–5 ml. of soln. was centrifuged and the amt. of dye remaining was detd. colorimetrically. In another series of expts. the dye was added after pptn., in which case it was added after passing H_2S and in place of the 10 ml. H_2O satd. with H_2S. After 15 min. the highest adsorption was by As_2S_3, 97.2%; least by HgS, PbS, SnS_2, and Bi_2S_3, 46.6, 44.0, 48.8, and 50.0%, resp.; and in between were CdS, Ag_2S, and Sb_2S_3, 70.0, 58.2, and 60.4%, resp. With respect to time the sulfides were divided into 3 groups: the adsorption of dye by HgS, Bi_2S_3, Sb_2S_3, and SnS_2 increased with time; adsorption by CuS and Ag_2S decreased with time; and adsorption by CdS, PbS, and As_2S_3 remained practically the same. Adsorption by Hg, Cu, and As sulfides was not affected by the time when the dye was added. Thus, the aging of these sulfides is not affected by the dye. An increase or decrease in the amt. of dye adsorbed on aging is attributed to disaggregation or aggregation of the sulfide with time. An electron-microscope study of Ag_2S, SnS_2, CuS, As_2S_3, and Sb_2S_3 gels showed them to have a porous cellular structure. The structure of Ag_2S was denser than that of the other sulfides; PbS and CdS had a cryst. structure.

M. Hosch

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

AVRAMENKO, L.F.; VILENSKIY, Yu.B.; GUSEVA, L.K.; IVANOV, B.M.; POCHINOK, V.Ya.; STEKLYANNIKOVA, Z.I.; FAYERMAN, G.P.

Stabilizing effect of thiazolotetrazoles and tetrazolobenzothiazoles on silver chloride photographic emulsions. Zhur.nauch. i prikl.fot.i kin. 5 no.4:294-295 Jl-Ag '60. (MIRA 13:8)

1. Gosudarstvennyy universitet Kiyev, Filial Nauchno-issledovatel'skogo kino-fotoinstituta, Shostka i Institut kino-inshenerov, Leningrad.
(Photographic emulsions) (Tetrazole)

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

BLINOVA, V.A.; PLOTNIKOVA, N.V.; VOLKOV, N.M.; SYSOYEVA, A.V.; AVDEYEV, P.P.; KATSEVMAN, Kh.A.; RODINA, P.M.; GUSEVA, L.L.; KAMENSKIY, V.I., red.; BYKOV, A.N., tekhn.red.

[Economy of Tambov Province; a statistical manual] Narodnoe khoziaistvo Tambovskoi oblasti; statisticheskii sbornik. [Tambov] Izd-vo "Tambovskaia pravda," 1957. 187 p. (MIRA 11:3)

1. Tabmovskaya oblast'. Statisticheskoye upravleniye. 2. Statisticheskoye upravleniye Tambovskoy oblasti (for all except Kamenskiy, Bykov). 3. Nachal'nik Statisticheskogo upravleniya (for Kamenskiy)
(Tambov Province--Statistics)

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

GUSEVA, L.L., (Moskva)

Clinical picture of dystrophic myotonia. Klin.med. 36 no.9:93-97 S '58 (MIRA 11:10)

1. Iz nevrologicheskoy kliniki (zav. - prof. N.A. Popova) Moskovskogo oblastnogo nauchno-issledovatel'skogo instituta imeni Vladimirskogo.
(MYOTONIA, ASTROPHICA, clin manifest. (Rus))

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

GUSEVA, L.L.

Characteristics of massage in hemiplegia of vascular origin. Vop. kur., fizioter. i lech. fiz. kul't. 26 no.4:312-315 Jl-Ag '61. (MIRA 15:1)

1. Iz otdeleniya fizioterapii i lechebnoy fizicheskoy kul'tury (zav. dotsent N.P.Krylov) Moskovskogo oblastnogo nauchno-issledovatel'skogo klinicheskogo instituta imeni M.F.Vladimirskogo.
(PARALYSIS) (MASSAGE)

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

GUSEVA, L.L., nauchnyy sotrudnik

Massage in spastic paralysis. Med. sestra 21 no.5:53-56 My '62. (MIRA 15:5)

1. Iz kliniki nervnykh bolezney Moskovskogo oblastnogo nauchno-issledovatel'skogo klinicheskogo instituta imeni M.F.Vladimirskogo, Moskva.

(MASSAGE) (PARALYSIS, SPASTIC)

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

SEMENOV, V.A.; GUSEVA, L.L.; SMIRNOVA, G.G. (Moskva)

Clinical picture and morphology of defects of development of the blood vessels of the spinal cord. Vop. neirokhir. 26 no.5: 22-25 S-O'62 (MIRA 17:4)

1. Klinika nervnykh bolezney i patomorfologicheskogo otdela Oblastnogo nauchno-issledovatel'skogo instituta imeni M.F. Vladimirskogo, Moskva.

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

SEMENOV, V.A.; IOFFE, Yu.A.; GUSEVA, L.L.

Clinical aspects of Dercum's syndrome. Sov.med. 26 no.12:102-106 D '62. (MIRA 16:2)

1. Iz kliniki nervnykh bolezney (zav. K.M. Gorbacheva) Moskovskogo oblastnogo nauchno-issledovatel'skogo klinicheskogo instituta imeni M.V. Vladimirskogo (dir. - zasluzhennyy vrach RSFSR P.M. Leonenko).

(CORPULENCE)

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

SEMENOV, V.A.; GUSEVA, L.L.; IOFFE, Yu.A.

Clinical aspects of Melkersson-Rosenthal syndrome.
Zhur. nevr. i psikh. 62 no.2:273-276 '62. (MIRA 15:6)

1. Klinika nervnykh bolezney (zav. K.M. Gorbacheva) Moskovskogo oblastnogo nauchno-issledovatel'skogo klinicheskogo instituta imeni M.F. Vladimirskogo.
(PARALYSIS, FACIAL) (EDEMA)
(TONGUE---DISEASES)

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

GUSEVA, L.L.

Exercise therapy in postinsult motor disorders. Vop. kur., fizioter. i lech. fiz. kul't 29 no.1:8-13 '64.
(MIRA 17:9)

1. Klinika nervnykh bolezney (zav.- prof. N.A. Popova) i otdeleniye fizioterapii i lechebnoy fizicheskoy kul'tury (ispolnyayushchiy obyazannosti zaveduyushchego Ye.O. Chernomordik) Moskovskogo oblastnogo klinicheskogo instituta imeni M.F. Vladimirskogo (dir. P.M. Leonenko).

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

STOYANOV, B.G.; GUSEVA, L.L.; IOFFE, Yu.A.

Meningeal phenomena in the Melkersson-Rosenthal syndrome.
Zhur. nevr. i psikh. 65 no.11:1659-1661 '65. (MIRA 19:1)

1. Kafedra kozhnykh i venericheskikh bolezney (zaveduyushchiy - prof. B.M.Pashkov) Moskovskogo meditsinskogo stomatologicheskogo instituta (direktor - prof. S.I.Babichev) Ministerstva zdravookhraneniya RSFSR i Klinika nervnykh bolezney Moskovskogo oblastnogo nauchno-issledovatel'skogo klinicheskogo instituta im. Vladimirskogo (direktor V.M.Leonenko).

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

STOYANOV, B.G.; SEMENOV, V.A.; GUSEVA, L.L.; IOFFE, Yu.A.

Melkersson—Rosenthal syndrome. Sov. med. 28 no.10:61-67 O '65. (MIRA 18:11)

1. Kafedra kozhnykh i venericheskikh bolezney (zav.- prof. B.M. Pashkov) Moskovskogo meditsinskogo stomatologicheskogo instituta i klinika nervnykh bolezney (zav.- prof. F.A. Poyemnyy) Moskovskogo oblastnogo klinicheskogo instituta imeni Vladimirskogo (dir.- P.M. Leonenko).

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

GUSEVA, L.M.

137-1958-2-2257

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2, p 6 (USSR)

AUTHORS: Pevzner, M.L., Guseva, L.M.

TITLE: The Formation of Magnetic Amalgams in the Amalgamation Process (Obrazovaniye magnitnykh amal'gam v protsesse amal'gamatsii)

PERIODICAL: Kolyma, 1957, Nr 7, pp 38-39

ABSTRACT: A study was made of the principles of formation of a magnetic amalgam. It was established that the cause of the formation of a magnetic amalgam is the medium. During internal amalgamation of the concentrates in vats without any CaO or NaOH (i.e., in an acid medium) and when Cu ions were present in the liquid portion of the pulp, a so-called "iron amalgam" formed which, in addition to an Au amalgam, contained a considerable quantity (up to 50%) of amalgamated particles of copper-clad Fe, as a result of which the iron amalgam acquired magnetic properties. To avoid losses of the extracted metal the magnetic fraction had to be treated with HNO_3; the Fe scrap, which was obtained during the finishing treatment by the amalgams, had to be collected and treated separately. The CaO concentration in the liquid portion of the pulp was as high as 0.15%.

A.Sh.

Card 1/1

1. Amalgams--Magnetic--Formation 2. Amalgamation processes--Applications

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

GUSEVA, L.M.; SOKOLOV, B.K.; KRASIN, A.G.; LYSENKO, A.M.; MORCZOV, G.A., red.

[For high corn yields] Za vysokie urozhai kukuruzy. Novgorod, Knizhnaia red.gazety "Novgorodskaia pravda," 1960. 59 p. (MIRA 14:12)

(Corn (Maize))

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

VORONOV, B.G.; GUSEVA, L.M.

Spectrum analysis of deposited high speed steel. Avtom. svar. 16 no.12:84-85 D '63. (MIRA 17:1)

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

VORONOV, B.G.; GUSEVA, L.M.; KURDYUMOVA, A.M.; KRASNOPROSHIN, V.A.

Spectrum analysis of girth joints in high-alloy steel. Avtom. svar. 17 no.4:94-95 Ap '64 (MIRA 18:1)

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

GUSEVA, L.N.

Phase transitions in alloys of chromium with tantalum and niobium. Izv.AN SSSR.Neorg.mat. 1 no.10:1743-1746 O '65.
(MIRA 18:12)

1. Institut metallurgii A.A.Baykova, Moskva. Submitted July 5, 1965.

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

GUSEVA, L. N.

"Esophagogastro- and Esophago-Intestinal Anastomosis." Cand Med Sci, Second Moscow State Medical Inst imeni I. V. Stalin, Moscow, 1954. (KL, No 3, Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)
SO: Sum. No. 556, 24 Jun 55

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

QUSEVA, L.N., kandidat meditsinskikh nauk (Moskva, Gospital'nyy val, 5, korpus 17, kv. 86)

Morphologic examination of esophagogastric and esophagointestinal anastomosis following radical surgery for exophageal and cardial cancer [with summary in English p.157]. Vest.khir. 78 no.6:28-34 Je '57. (MIRA 10:8)

1. Iz fakul'tetskoy khirurgicheskoy kliniki (zav. - prof. B.V. Petrovskiy) 2-go Moskovskogo meditsinskogo instituta

(ESOPHAGUS, neoplasms
surg., morphol. of esophago-gastric & esophago-intestinal anastomosis)
(STOMACH NEOPLASMS, surg.
morphol. of esophago-gastric intestinal anastomosis in cancer of cardia)
(INTESTINES, surg.
morphol. of esophago-intestinal anastomosis in cancer of cardia)

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

BONDALEVICH, V.Ya.; GUSEVA, L.N.

Work of the White Russian Republic Surgical Society. Zdrav. Belor. 5 no.9:77 S '59. (MIRA 12:12)
(WHITE RUSSIA--SURGICAL SOCIETIES)

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

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GUSEVA, L.N.

Sarcoma of retroperitoneal space in complete reverse location of the internal organs. Zdrav. Belor. 6 no.9:69 S '60. (MIRA 13:9)

1. Iz kafedry fakul'tetskoy khirurgii (zaveduyushchiy - professor P.N. Maslov) Minskogo meditsinskogo instituta.
(VICERA--ABNORMITIES AND DEFORMITIES) (ABDOMEN--TUMORS)

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GUSEVA, L.N.

In the Society of Surgeons and Therapeutists. Zdrav. Belor. 6 no. 10:68-69 O '60. (MIRA 13:10)
(WHITE RUSSIA--SURGICAL SOCIETIES)
(WHITE RUSSIA--THERAPEUTIC SOCIETIES)

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GUSEVA, L.

Meeting of the Surgical Society. Zdrav. Bel. 7 no.5:71-72 My '61.
(MIRA 14:6)

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GUSEVA, L.N.

Nitritometric titration of some secondary amines with internal indicators. Sbor. nauch. trud. TSANII 6:103-109 '64. (MIRA 19:1)

1. Laboratoriya farmatsevticheskogo analiza (rukovoditel' - kand. farm. nauk M.I. Kuleshova) TSentral'nogo aptechnogo nauchno-issledovatel'skogo instituta.

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KORNILOV, I.I. (Moskva); MINTS, R.S. (Moskva); GUSEVA, L.N. (Moskva); MALKOV, Yu.S. (Moskva)

Interaction of the NiAl compound with niobium. Izv. AN SSSR. Met. no.6:132-136 N-D '65. (MIRA 19:1)

1. Submitted July 30, 1964.

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L 63497-65 EPF(c)/EPF(n)-2/EWA(c)/EWT(m)/EWP(b)/T/EWP(t) IJP(c) JD/JG

ACCESSION NR: AP5018921 UR/0363/65/001/006/0880/0884
546.3-19-76-883:539.26

AUTHOR: Guseva, L. N.; Mariyengof, L. B. 44,55 44,55

TITLE: X-ray diffraction analysis of the Cr-Ta system

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 6, 1965, 880-884

TOPIC TAGS: alloy, heat resistant alloy, chromium alloy, tantalum containing alloy, chromium tantalum system, system phase diagram, alloy phase composition, alloy structure

ABSTRACT: Chromium-tantalum alloys with a tantalum content of 1—50 at% were levitation melted from >99.97%-pure Cr and >99.9%-pure Ta in purified helium and studied by x-ray diffraction and microstructural analysis. The phase diagram of the Cr-Ta system (see Fig. 1 of the Enclosure) was plotted on the basis of obtained data. It was found that the maximum solubility of Ta in Cr is 5.2 at% at eutectic temperature, and drops to less then 1 at% Ta at 1400C. About 13 at% Cr dissolves in Ta. Solubility decreases with decreasing temperatures. The existence of two modifications of $TaCr_2$ compound was confirmed: the high-temperature modification with a hexagonal struc-

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ture of the $MgZn_2$ type, and the low-temperature modification with a cubic structure of the $MgCu_2$ type. The high-temperature modification dissolves Ta and forms a single phase region in the range 33—42 at%. Below 1400C, $TaCr_2$ compound transforms to a cubic structure of the $NiTi_2$ type. Orig. art. has: 3 figures and 2 tables. [AZ]

ASSOCIATION: Institut metallurgii im. A. A. Baykov (Institute of Metallurgy)

SUBMITTED: 06Feb65 ENCL: 01 SUB CODE: MM, OP

NO REF SOV: 003 OTHER: 007 ATD PRESS: 4023

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ACCESSION NR: AP5018921

ENCLOSURE: 01

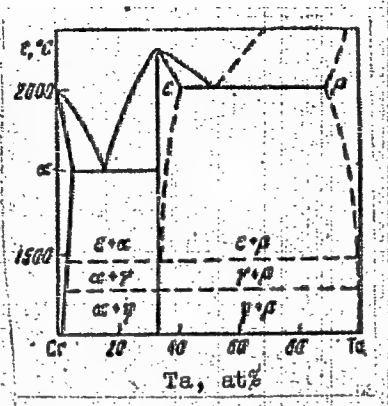

Fig. 1. Phase diagram of the Cr-Ta system

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

49-6-18/21

AUTHORS: Shifrin, K. S. and Guseva, L. N.

TITLE: Forecasting of the natural illumination intensity. (Prognoz yestestvennoy osveshchennosti).

PERIODICAL: "Izvestiya Akademii Nauk, Seriya Geofizicheskaya" (Bulletin of the Ac.Sc., Geophysics Series), 1957, No.6, pp. 827-830 (U.S.S.R.)

ABSTRACT: It is now known that the regime of the natural illumination intensity is independent of the geographical latitude of the observation point. According to data published by Sharonov, V.V. (1) and particularly data published by Barteneva, O.D. and Guseva, L.N. (2), the natural intensity of illumination in a given point is an unequivocal function of the height of the Sun and the degree of cloudiness, i.e. it depends only on the character and intensity of the flux irradiating the lower layers of the atmosphere. The changes in natural illumination intensity caused by fluctuations by the transparency of the atmosphere are smaller than the accuracy of observations of the illumination intensity. Therefore, it is possible to forecast the illumination intensity by utilising the existing scheme of forecasting cloudiness. The aim of this paper is to develop a method of forecasting of the local illumination

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Forecasting of the natural illumination intensity. (Cont.)

intensity on the basis of cloudiness forecasts. It is thereby assumed that the success of the forecasting will depend on the success of forecasting the cloudiness and also on the probability of existence of the above mentioned unequivocal relation between illumination intensity and cloudiness. The data given in Table 1 show that the illumination intensity changes relatively little with changes in the shape of the cloudiness for various cumulus clouds. On the basis of the data given in Table 1, Table 2 gives data on the total illumination intensity in terms of variations of the natural illumination intensity between given limits of maxima and minima. Table 3 contains data on the scattered light (illumination in the shade) corresponding to seven forecasting classifications of cloudiness. On the basis of analysis of the data of Table 2 and 3, it is stated that in the case of a clear sky the fluctuations will be small and the total illumination intensity will increase from 5000 Lux for a height of the Sun of 5° above the horizon and to 90 000 Lux for a height of the Sun of 55° above the horizon. The respective values of the scattered illumination will be 3000 and 40 000 Lux. The author also mentions the work of

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Forecasting of the natural illumination intensity. (Cont.)

Wörner, H. (4) and states that Wörner tries to circumvent the necessity of forecasting cloudiness and considers that that is not justified and that to be effective the method of Wörner requires accumulation of illumination intensity data over many years for all the points of interest. There are 3 tables and 4 references, 3 of which are Slavic.

SUBMITTED: November 19, 1956.

ASSOCIATION: Chief Geophysics Observatory imeni A.I. Voyeykov. (Glavnaya Geofizicheskaya Observatoriya im. A.I.Voyeykova).

AVAILABLE: Library of Congress

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

GUSEVA, L. N.

36-68-7/18

AUTHOR: Barteneva, O.D. and Guseva, L.N.

TITLE: The Effect of Meteorological Conditions on Natural Illumination. (Rezhim yestestvennoy osveshchennosti v zavisimosti ot meteorologicheskikh usloviy)

PERIODICAL: Trudy Glavnoy geofizicheskoy observatorii 1957, Nr 68, pp. 120-131 (USSR)

ABSTRACT: The article summarizes the results of observations on the interrelationship between natural illumination, degree of cloudiness and the elevation of the sun. It was found that the correlation between variations in total and scattered illumination remains constant for any latitude in Russia provided that the sun's elevation and the type of clouds are the same. Hence, the information obtained by V.V. Sharonov for the area of Slutsk is of a general nature and has been confirmed by observations made at Irkutsk, Tashkent, Yalta, Nikol'sk and Lisino. The article mentions Ya.A. Lopukhin and N.N. Kalitin. There are 8 diagrams, 3 tables, and 32 references, of which 27 are USSR.

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ASHIROV, K.B.; GUBANOV, A.I.; SURGUCHEV, M.L.; GUSEVA, L.N.; GPURIN, N.V.; YUGIN, L.G.

Geology and development of the Tarkhany oil field of the Oil Field Administration of the Bugunuslan Petroleum Trust. Trudy Giprovostoknefti no.3:165-182 '61. (MIRA 14:12)
(Bugurusian region--Oil reservoir engineering)

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ASHIROV, K.B.; GUBANOVA, A.I.; SURGUCHEV, M.L.; GUSEVA, L.N.; OPURIN, N.V.; YUGIN, L.G.

Geology and development of the Tarkhany field of the Oil Field Administration of the Buguruslan Petroleum Trust. Trudy Giprovostoknefti no.3:165-182 '61. (MIRA 16:7)

(Buguruslan region--Oil reservoir engineering)

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

ASHIROV, K.B.; GUBANOV, A.I.; GUSEVA, L.N.; OPURIN, N.V.; YUGIN, L.G.

Geology and flow diagrams of the development of the Alakayevka field. Trudy Giprovostoknefti no.5:197-208 '62. (MIRA 16:8)

(Kuybshev Province--Petroleum geology)

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

ASHIROV, K.B.; GUBANOV, A.I.; GUSEVA, L.N.; OPURIN, N.V.; SHABANOV, V.A.

Geology and oil potential of Devonian layers in the Mikhaylovskoye-Kokhany field and basic prerequisites for its development. Trudy Giprovostoknefti no.5:209-221 '62. (MIRA 16:8)

(Kinel'-Cherkassy District--Oil reservoir engineering)

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

ASHIROV, K.B.; GUBANOV, A.I.; GUSEVA, L.N.; OPURIN, N.V.

Practice in the development of the pool in the layer B_2 of the Radayevskoye field. Trudy Giprovostoknefti no.5:240-256 '62. (MIRA 16:8)

(Kuybyshev Province--Oil reservoir engineering)

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GUSEVA, L. N.

Physico-Chemical Investigation of Ferro-Silicon. N. V. Ageev, N. N. Kurnakov, L. N. Guseva and O. K. Konenko-Gracheva. (Metallurg, 1940, No. 1, pp. 5-12). (In Russian). The authors describe an investigation of the physical properties of ferro-silicon. Alloys with silicon contents of 43.5-66.0% were prepared by melting, casting into heated moulds and cooling slowly to avoid cracking. In alloys with 43-53% of silicon, the structure consisted of FeSi dendrites against a background of large elongated crystals of the ζ-phase. The structure suggests that the ζ-phase is formed by a peritectic reaction between the molten alloy and the ε-phase. Alloys annealed for seven days at 950° C. showed decomposition of the ζ-phase into a eutectoid type of phase. Commercial 45% ferro-silicon had a peritectic structure made up of crystals of the ε-phase surrounded by the ζ-phase. Measurements of the electrical resistance and the temperature coefficient of electrical resistance of cast ferro-silicon showed no anomalies. The ζ-phase has a higher electrical resistance than the ε-phase. Microscopic and X-ray examination show that the ζ-phase has a homogeneity range of 53-54.5% silicon. The crystal structure of this phase was determined. The X-ray examination showed that on annealing the amount of the ζ-phase is reduced due to decomposition into silicon, ε-phase and an unidentified phase.

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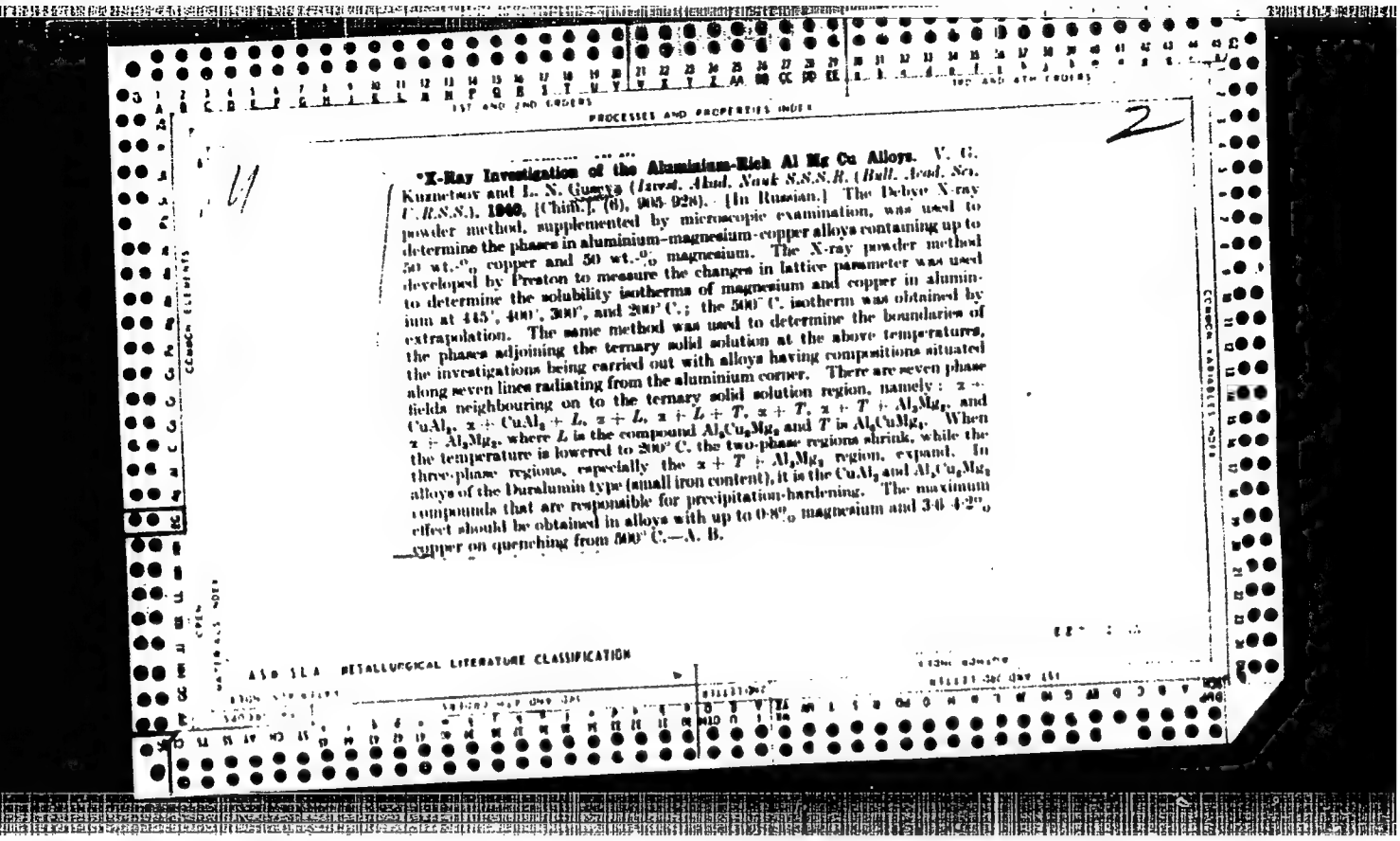

PROCESSES AND PROPERTIES INDEX

2

"X-Ray Investigation of the Aluminium-Rich Al Mg Cu Alloys. V. G. Kuznetsov and L. N. Guseva (*Izvest. Akad. Nauk S.S.S.R. (Bull. Acad. Sci. U.R.S.S.)*, **1940**, (Chim.), (6), 905-928). [In Russian.] The Debye X-ray powder method, supplemented by microscopic examination, was used to determine the phases in aluminium–magnesium–copper alloys containing up to 50 wt.-% copper and 50 wt.-% magnesium. The X-ray powder method developed by Preston to measure the changes in lattice parameter was used to determine the solubility isotherms of magnesium and copper in aluminium at 445°, 400°, 300°, and 200° C.; the 500° C. isotherm was obtained by extrapolation. The same method was used to determine the boundaries of the phases adjoining the ternary solid solution at the above temperatures, the investigations being carried out with alloys having compositions situated along seven lines radiating from the aluminium corner. There are seven phase fields neighbouring on to the ternary solid solution region, namely: $\alpha +$ $CuAl_2$, $\alpha + CuAl_2 + L$, $\alpha + L$, $\alpha + L + T$, $\alpha + T$, $\alpha + T + Al_2Mg_3$, and $\alpha + Al_2Mg_3$, where L is the compound $Al_5Cu_6Mg_2$ and T is Al_6CuMg_4. When the temperature is lowered to 300° C. the two-phase regions shrink, while the three-phase regions, especially the $\alpha + T + Al_2Mg_3$ region, expand. In alloys of the Duralumin type (small iron content), it is the $CuAl_2$ and $Al_5Cu_6Mg_2$ compounds that are responsible for precipitation-hardening. The maximum effect should be obtained in alloys with up to 0·8% magnesium and 3·0–4·2% copper on quenching from 500° C.—A. B.

A1a 11a METALLURGICAL LITERATURE CLASSIFICATION

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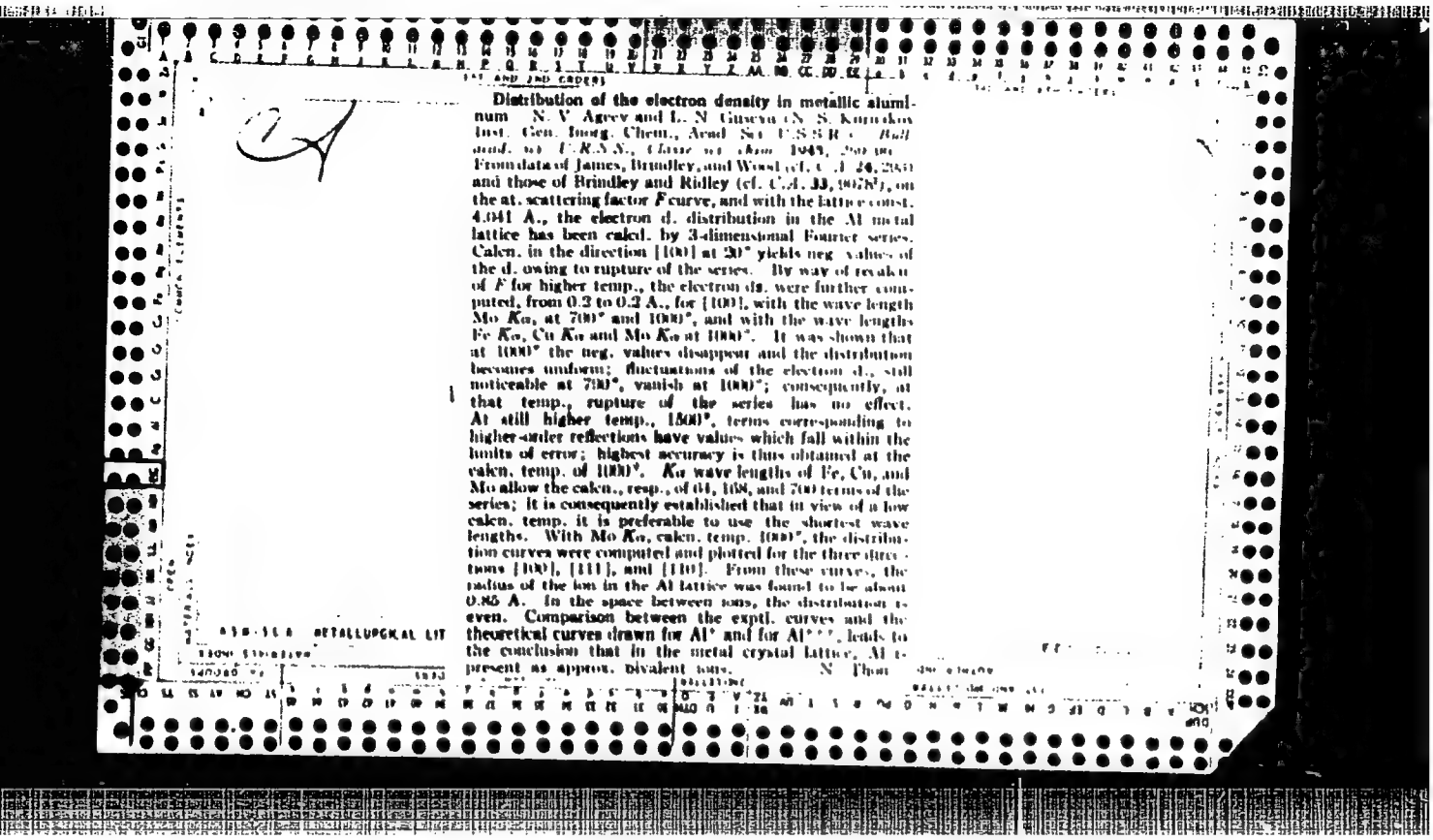

Distribution of the electron density in metallic aluminum. N. V. Agreev and L. N. Gusev (N. S. Kurnakov Inst. Gen. Inorg. Chem., Acad. Sci. U.S.S.R.). *Bull. acad. sci. U.R.S.S., Classe sci. chim.* 1945, 209-16. From data of James, Brindley, and Wood (cf. C.A. 36, 2850) and those of Brindley and Ridley (cf. C.A. 33, 9078[2]), on the at. scattering factor *F* curve, and with the lattice const. 4.041 A., the electron d. distribution in the Al metal lattice has been calcd. by 3-dimensional Fourier series. Calcn. in the direction [100] at 20° yields neg. values of the d. owing to rupture of the series. By way of recalculation of *F* for higher temp., the electron ds. were further computed, from 0.2 to 0.2 A., for [100], with the wave length Mo *K*α, at 700° and 1000°, and with the wave lengths Fe *K*α, Cu *K*α and Mo *K*α at 1000°. It was shown that at 1000° the neg. values disappear and the distribution becomes uniform; fluctuations of the electron d., still noticeable at 700°, vanish at 1000°; consequently, at that temp., rupture of the series has no effect. At still higher temp., 1500°, terms corresponding to higher-order reflections have values which fall within the limits of error; highest accuracy is thus obtained at the calcn. temp. of 1000°. *K*α wave lengths of Fe, Cu, and Mo allow the calcn., resp., of 61, 108, and 700 terms of the series; it is consequently established that in view of a low calcn. temp. it is preferable to use the shortest wave lengths. With Mo *K*α, calcn. temp. 1000°, the distribution curves were computed and plotted for the three directions [100], [111], and [110]. From these curves, the radius of the ion in the Al lattice was found to be about 0.85 A. In the space between ions, the distribution is even. Comparison between the exptl. curves and the theoretical curves drawn for Al^{+} and for Al^{+++}, leads to the conclusion that in the metal crystal lattice, Al is present as approx. bivalent ions. N. Thon

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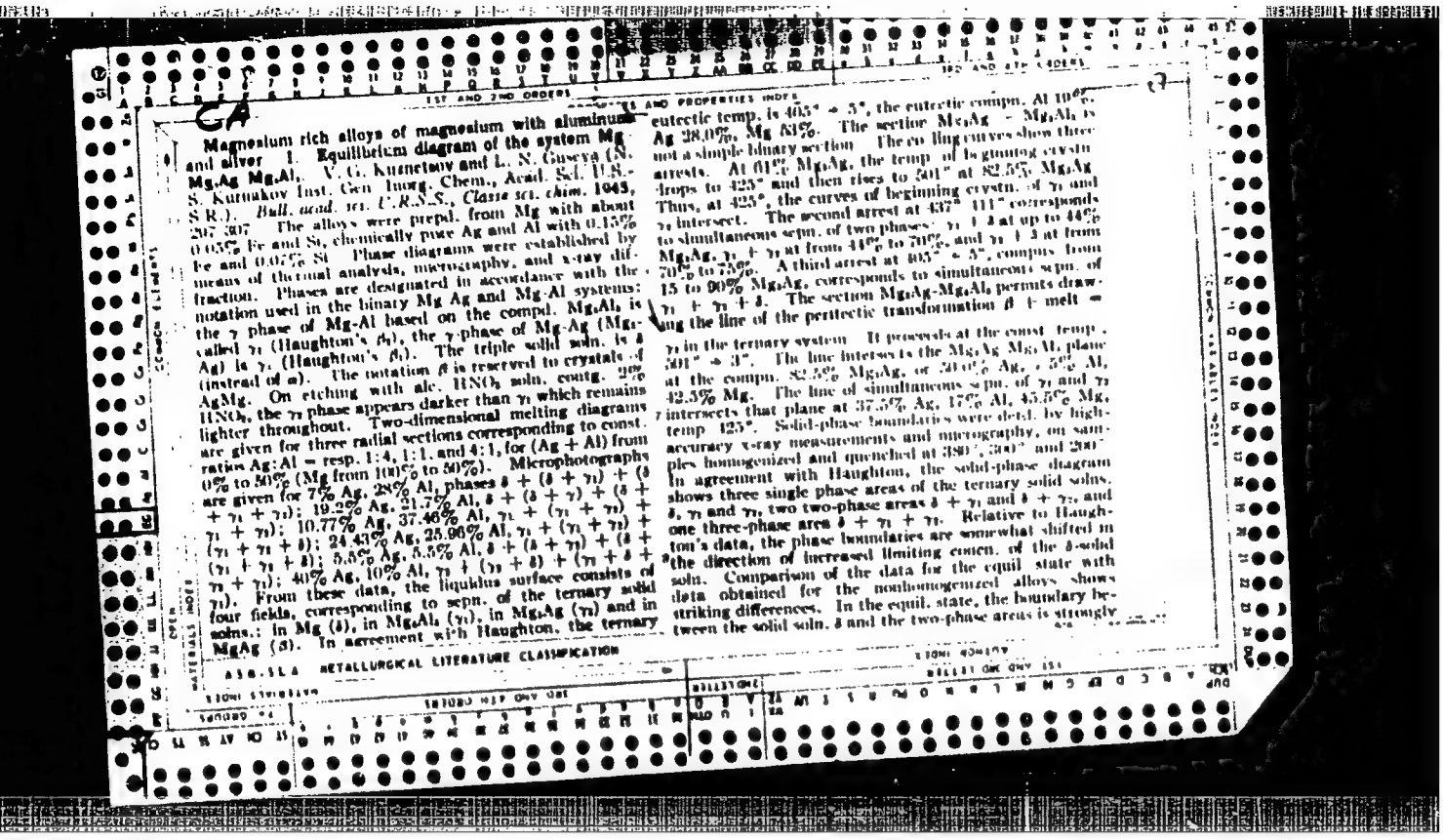

Magnesium rich alloys of magnesium with aluminum and silver. I. Equilibrium diagram of the system Mg-Mg$_2$Ag-Mg$_2$Al$_3$. V. G. Kuznetsov and L. N. Guseva (N. S. Kurnakov Inst. Gen. Inorg. Chem., Acad. Sci. U.S.S.R.). *Bull. acad. sci. U.R.S.S., Classe sci. chim.* 1943, 207-307. The alloys were prepd. from Mg with about 0.05% Fe and Si, chemically pure Ag and Al with 0.15% Fe and 0.07% Si. Phase diagrams were established by means of thermal analysis, micrography, and x-ray diffraction. Phases are designated in accordance with the notation used in the binary Mg-Ag and Mg-Al systems: the γ phase of Mg-Al based on the compd. Mg_2Al_3 is called γ_1 (Haughton's β_1), the γ phase of Mg-Ag (Mg_3Ag) is γ_1 (Haughton's β_1). The triple solid soln. is δ (instead of α). The notation β is reserved to crystals of AgMg. On etching with alc. HNO_3 soln. contg. 2% HNO_3, the γ_2 phase appears darker than γ_1 which remains lighter throughout. Two-dimensional melting diagrams are given for three radial sections corresponding to const. ratios Ag:Al = resp. 1:4, 1:1, and 4:1, for (Ag + Al) from 0% to 50% (Mg from 100% to 50%). Microphotographs are given for 7% Ag, 28% Al, phases δ + (δ + γ_1) + (δ + γ_1 + γ_2); 19.2% Ag, 21.7% Al, δ + (δ + γ_1) + (γ_1 + γ_2); 10.77% Ag, 37.46% Al, γ_1 + (γ_1 + γ_2) + (γ_1 + γ_2 + β); 24.43% Ag, 25.06% Al, γ_1 + (γ_1 + γ_2) + (γ_1 + γ_2 + β); 5.5% Ag, 5.5% Al, δ + (δ + γ_2) + (δ + γ_1 + γ_2); 40% Ag, 10% Al, γ_2 + (γ_2 + β) + (γ_2 + β + γ_1). From these data, the liquidus surface consists of four fields, corresponding to sepn. of the ternary solid solns.: in Mg (δ), in Mg_2Al_3 (γ_1), in Mg_3Ag (γ_2) and in AgMg (β). In agreement with Haughton, the ternary eutectic temp. is 465° ± 5°, the eutectic compn. Al 10%, Ag 28.0%, Mg 62%. The section Mg_3Ag – Mg_2Al_3 is not a simple binary section. The cooling curves show three arrests. At 61% Mg_2Ag, the temp. of beginning crystn. drops to 425° and then rises to 501° at 82.5% Mg_2Ag. Thus, at 425°, the curves of beginning crystn. of γ_2 and γ_1 intersect. The second arrest at 437° ± 11° corresponds to simultaneous sepn. of two phases: γ_1 + β at up to 44% Mg_2Ag, γ_1 + γ_2 at from 44% to 70%, and γ_2 + β at from 70% to 75%. A third arrest at 465° ± 5°, compns. from 15 to 90% Mg_2Ag, corresponds to simultaneous sepn. of γ_1 + γ_2 + δ. The section Mg_3Ag-Mg_2Al_3 permits drawing the line of the peritectic transformation β + melt = γ_2 in the ternary system. It proceeds at the const. temp., 501° ± 3°. The line intersects the Mg_2Ag-Mg_2Al_3 plane at the compn. 32.5% Mg_3Ag, or 50.0% Ag, 5% Al, 42.5% Mg. The line of simultaneous sepn. of γ_2 and γ_1 intersects that plane at 37.5% Ag, 17% Al, 45.5% Mg, temp. 425°. Solid-phase boundaries were detd. by high-accuracy x-ray measurements and micrography, on samples homogenized and quenched at 380°, 300°, and 280°. In agreement with Haughton, the solid-phase diagram shows three single phase areas of the ternary solid solns. δ, γ_1 and γ_2, two two-phase areas δ + γ_1 and δ + γ_2, and one three-phase area δ + γ_1 + γ_2. Relative to Haughton's data, the phase boundaries are somewhat shifted in the direction of increased limiting concn. of the δ-solid soln. Comparison of the data for the nonhomogenized alloys with data obtained for the nonhomogenized alloys shows striking differences. In the equil. state, the boundary between the solid soln. δ and the two-phase areas is strongly

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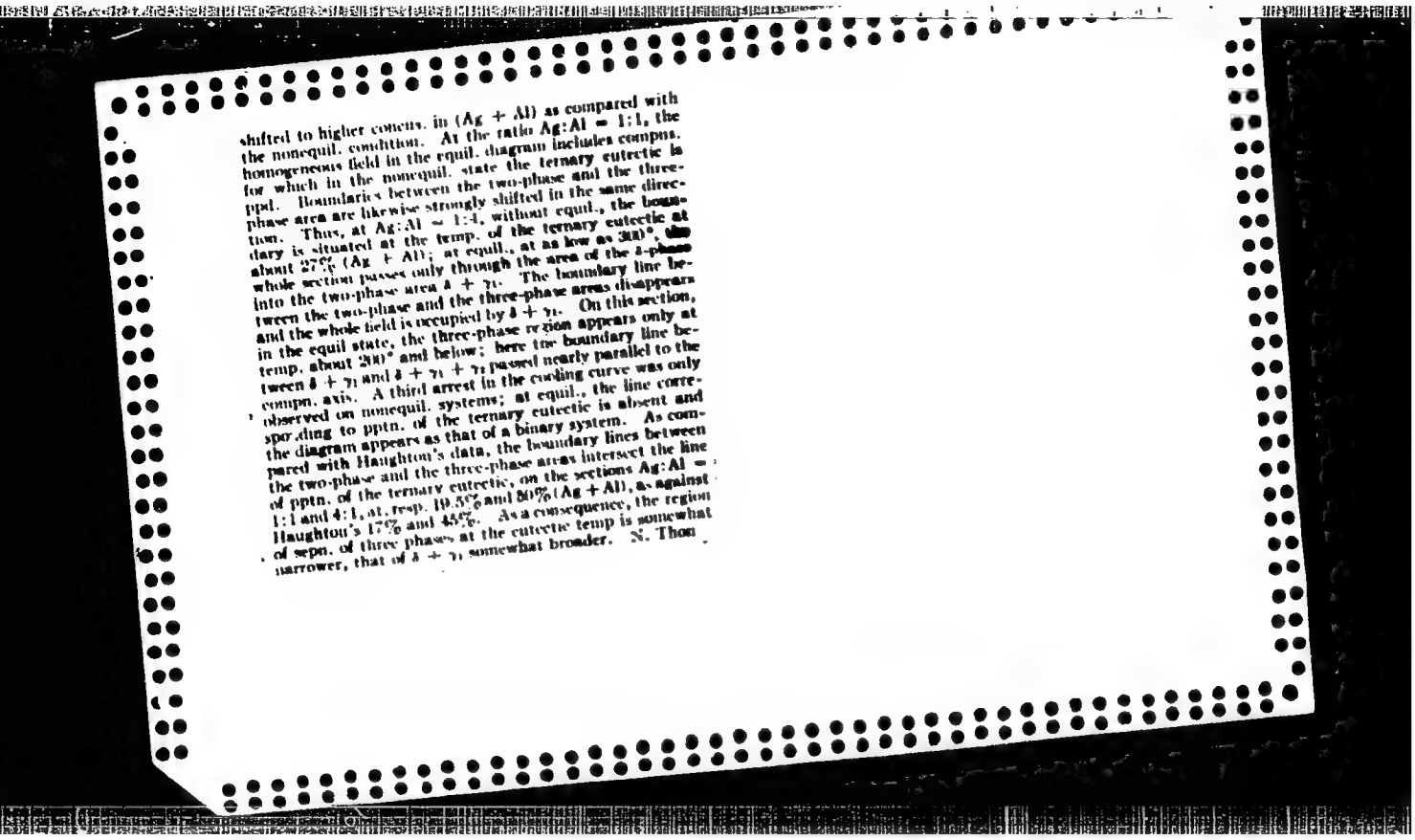

shifted to higher concns. in (Ag + Al) as compared with the nonequil. condition. At the ratio Ag:Al = 1:1, the homogeneous field in the equil. diagram includes compns. for which in the nonequil. state the ternary eutectic is ppd. Boundaries between the two-phase and the three-phase area are likewise strongly shifted in the same direction. Thus, at Ag:Al = 1:4, without equil., the boundary is situated at the temp. of the ternary eutectic at about 27% (Ag + Al); at equil., at as low as 300°, this whole section passes only through the area of the δ-phase into the two-phase area δ + η. The boundary line between the two-phase and the three-phase areas disappears and the whole field is occupied by δ + η. On this section, in the equil state, the three-phase region appears only at temp. about 200° and below; here the boundary line between δ + η and δ + η + η passed nearly parallel to the compn. axis. A third arrest in the cooling curve was only observed on nonequil. systems; at equil., the line corresponding to pptn. of the ternary eutectic is absent and the diagram appears as that of a binary system. As compared with Haughton's data, the boundary lines between the two-phase and the three-phase areas intersect the line of pptn. of the ternary eutectic, on the sections Ag:Al = 1:1 and 4:1, at, resp. 19.5% and 50% (Ag + Al), as against Haughton's 17% and 45%. As a consequence, the region of sepn. of three phases at the eutectic temp is somewhat narrower, that of δ + η somewhat broader. N. Thon

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GUSEVA, L. N.

PA 27/49T39

USSR/Chemistry - Nickel, Electron Sep/Oct 48
Density
Chemistry - Density, Electronic Structure and

"Experimental Study of Electron Density in Crystals: No 3, Electron Density of Nickel," N. V. Ageyev, L. N. Guseva, Inst Gen and Inorg Chem imeni N. S. Kurnakov, Acad Sci USSR, 9 pp

"Iz Ak Nauk SSSR, Otdel Khim Nauk" No 5

Conducted experimental determination of the atomic factor of diffusion in nickel by method of substituting an aluminum standard in cobalt and copper radiations. Calculated electron density for six

27/49T39

USSR/Chemistry - Nickel, Electron Sep/Oct 48
Density (Contd)

directions of the elementary nickel cell by method of Fourier's triple series for calculated temperature of 8,000°. Each atom of nickel is joined with 12 close neighbors by "bridges" of the increased electron density, which implies the presence of exchanging forces between atoms.

Submitted 22 Sep 47.

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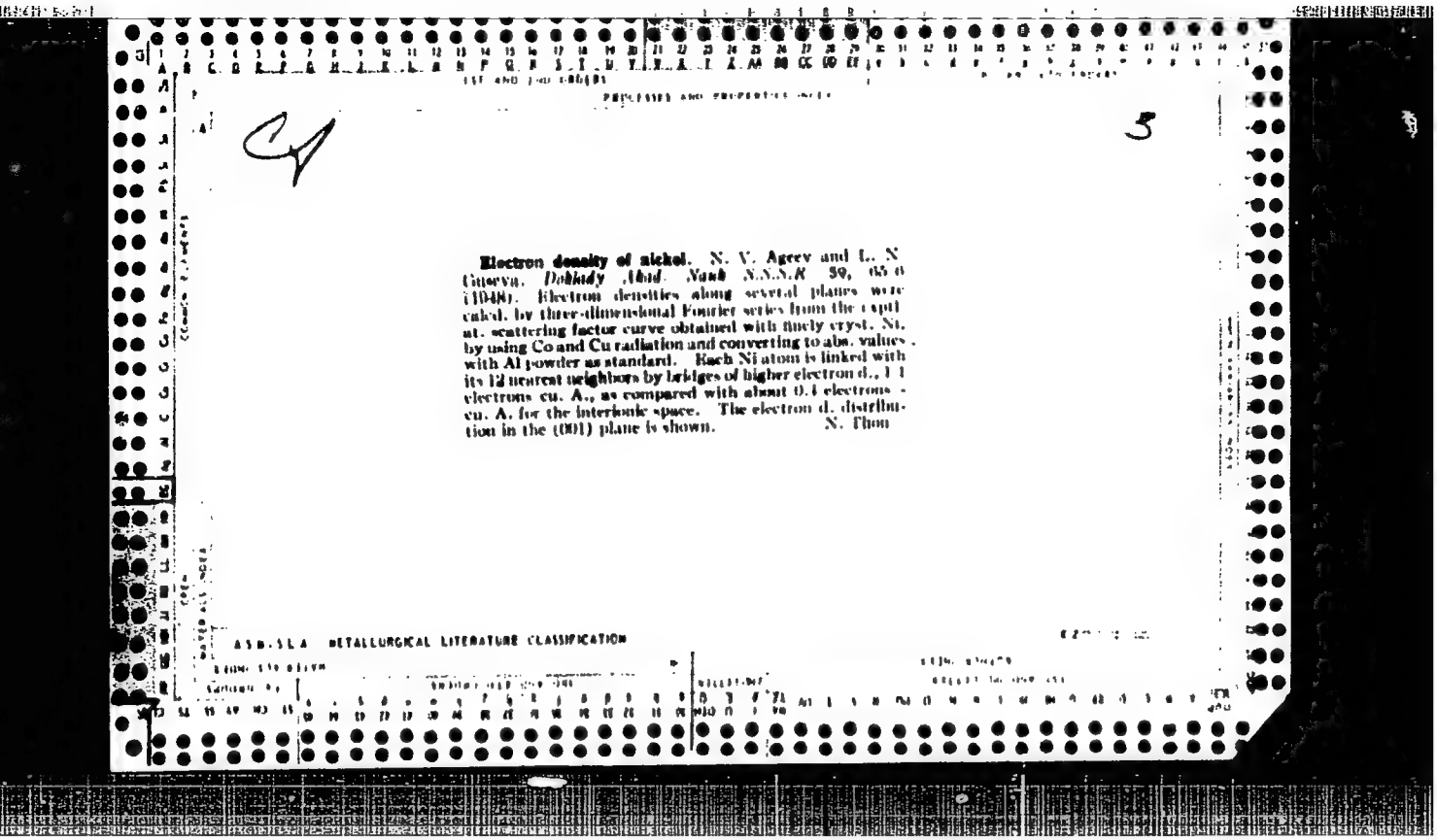

Electron density of nickel. N. V. Agreev and L. N. Gitsevich. *Doklady Akad. Nauk S.S.S.R.* 59, 65-8 (1948). Electron densities along several planes were calcd. by three-dimensional Fourier series from the exptl. at. scattering factor curve obtained with finely cryst. Ni, by using Co and Cu radiation and converting to abs. values with Al powder as standard. Each Ni atom is linked with its 12 nearest neighbors by bridges of higher electron d., 1.1 electrons cu. A., as compared with about 0.4 electrons cu. A. for the interionic space. The electron d. distribution in the (001) plane is shown. N. Thon

A.S.M.-S.L.A. METALLURGICAL LITERATURE CLASSIFICATION

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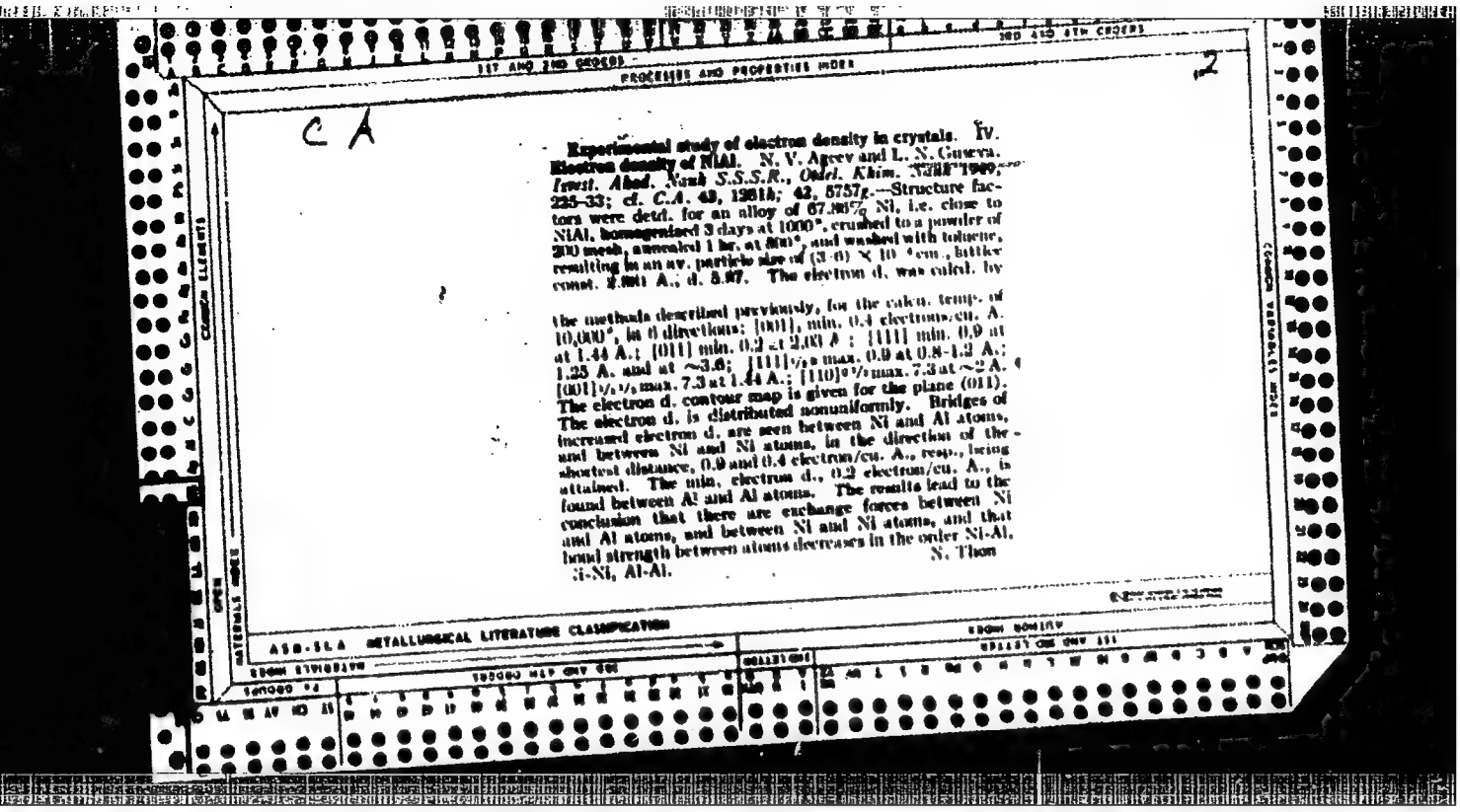

C A

Experimental study of electron density in crystals. IV. Electron density of NiAl. N. V. Ageev and L. N. Guseva. *Inst. Khod. Nauk S.S.S.R., Otdel. Khim.* 1941 1989. 225–33; cf. *C.A.* 43, 1981*h*; 42, 8757*g*.—Structure factors were detd. for an alloy of 67.80% Ni, i.e. close to NiAl, homogenized 3 days at 1000°, crushed to a powder of 200 mesh, annealed 1 hr. at 800°, and washed with toluene, resulting in an av. particle size of $(3-6) \times 10^{-4}$ cm., lattice const. 2.881 A., d. 5.87. The electron d. was calcd. by the methods described previously, for the calcn. temp. of 10,000°, in 6 directions: [001], min. 0.4 electron/cu. A. at 1.44 A.; [011] min. 0.2 at 2.03 A.; [111] min. 0.9 at 1.25 A. and at ~3.6; [111]½ max. 0.9 at 0.8–1.2 A.; [001]½, ½ max. 7.3 at 1.44 A.; [110]0 ½ max. 7.3 at ~2 A. The electron d. contour map is given for the plane (011). The electron d. is distributed nonuniformly. Bridges of increased electron d. are seen between Ni and Al atoms, and between Ni and Ni atoms, in the direction of the shortest distance, 0.9 and 0.4 electron/cu. A., resp., being attained. The min. electron d., 0.2 electron/cu. A., is found between Al and Al atoms. The results lead to the conclusion that there are exchange forces between Ni and Al atoms, and between Ni and Ni atoms, and that bond strength between atoms decreases in the order Ni-Al, Ni-Ni, Al-Al.

S. Thon

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

GUSEVA, L.N.

"On the Nature of the β-Phase of the System Nickel-Aluminium. L. N. Guseva (*Doklady Akad. Nauk S.S.S.R.*, 1951, [Russian]. Alloys contg. 43·3–62·7 at.-% Ni were prepared from 99·99% Al and electrolytic Ni in a H.F. furnace in a corundum crucible under a mixture of CaF_2 + NaF as flux. Because of the considerable amount of heat liberated during the formation of the compound NiAl, the furnace was switched off from the beginning of melting until the end of the reaction. Rods ~3 mm. in dia. and 15–25 cm. long were cast in a circular tube, and homogenised by heating at 1100° C. for 4 hr. in vacuo. Rods free from surface defects were used for potentiometric measurement of the elect. resistivity (ρ) at 25° and 90° C., and were then broken to use whereas cavities were present. Were analysed chem. and their structure determined by X-ray analysis, using Co radiation. The lattice const. a was calculated from the doublet (410)α,α, the powder being prepared in a mortar and then annealed at 1000° C. for 30 min. in vacuo. Clear resolution of the doublet was obtained. The data obtained confirm Bradley and Taylor's conclusions (*Proc. Roy. Soc.*, 1937, [A], 159, 56; *M.A.*, 6, 244) concerning the boundaries of the β phase, that the max. in the a/composn. curve is not at 50 at.-% Ni but at a compn. richer in Al (~49% Ni). The max. on the temp. coeff. of resistivity/compn. curve, and the min. on the ρ/compn. curve, both occur at a similar place. Imichev and Mirolyubov (*Zhur. Tekhn. Fiziki*, 1940, 10, 310) reported that at 900° C. the Al–50 at.-% Ni alloy undergoes partial disordering, two b.c.c. lattices with const. differing by 0·04 Å. being present; to determine these lattice const. more accurately, G. has made X-ray measurements on alloys contg. 49·4 and 50·5 at.-% Ni at room temp., 600°, and 900° C. All the photographs indicated the presence of an ordered cubic structure of CsCl type; lines not corresponding to this structure were not observed, and photometric measurement of the intensity of the (100) and (110) lines on photographs taken at 900° C. showed that the ordering had not eburned on heating. The lattice const. of Al-49·4 at.-% Ni in the quenched condition was 2·878 Å. (compared with 2·880 Å. in the annealed state); the difference is within the experimental error, and could be connected with the appearance of lattice defects at high temp.—G. V. E. T.

Comments and evaluation

B-78524, 8 Sep 54

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

GUSEVA, I. N.

(2) 5

"Structure of Alloys of Nickel with Aluminium in the β-Phase Region at High Temperatures. I. N. Guseva and E. S. Makarov (*Doklady Akad. Nauk S.S.S.R.*, 1951, 77, (4), 615–618).—[In Russian]. Alloys contg. 60–66 at.-% Ni quenched from 1340° C. are single-phase and have a tetragonal structure. X-ray analysis of these alloys in the annealed state shows the presence of two phases, β + x' (Ni_3Al), in agreement with the equilibrium diagram of Bradley and Taylor (*Proc. Roy. Soc.*, 1937, [A], 159, 56; *M.A.*, 4, 241). The quenched alloys have a partially ordered body-centred structure. For the alloy with 60·6 at.-% Ni (Ni_3Al_2), a = 2·663, c = 3·237 kX, c/a = 1·125; d = 6·66; number of atoms in unit cell = 1·96. For the alloy with 66·6 at.-% Ni (Ni_3Al), number of atoms in unit cell = 2·01. The observed intensities of the reflections in an X-ray photograph of an alloy contg. 60·6 at.-% Ni, quenched from 1340° C., agree satisfactorily with the values calculated for Ni_3Al_2.

—G. V. E. T.

Evaluation B-78524, 8 Sep 54

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USSR/Chemistry - Magnesium-Silicon Compound Jan/Feb 52

"Experimental Study of Electron Density of Crystals. V. Electron Density of Mg_2Si," N. V. Ageyev, L. N. Guseva, Inst of Gen and Inorg Chem imeni Kurnakov, Acad Sci USSR

"Iz Ak Nauk, Otdel Khim Nauk" No 1, pp 31-39

Mg_2Si is a representative of the group including Mg_2Ge, Mg_2Sn, and Mg_2Pb, which all have the same cryst structure. Exptl detn was carried out of the structural factors of an alloy similar in compn

208T2

USSR/Chemistry - Magnesium-Silicon Compound (Contd) Jan/Feb 52

to Mg_2Si. The study of distribution of electron density allows clarification of the character of the chem bonds of the atoms in the crystal lattice of the above compds. The diagram of the state of the Mg-Si system was studied and showed that Mg_2Si is a unique compd, forming 2 eutectics with the components. If forms no solid solns.

(CA 47 no. 20: 10306 '53)

208T2

GUSEVA, L. N.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

GUSEVA, L.N.

(2)

Experimental study of the electron density in crystals. V. Electron density of Mg_2Si. N. V. Agreev and L. N. Guseva. *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1953, 31-9(Engl. translation).—See *C.A.* 46, 6893b.

H. L. H.

10/4/54

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

GUSEVA, L. N.

137-58 1-1248

Translation from: Referativnyy zhurnal Metallurgiya, 1958, Nr 1, p 168 (USSR)

AUTHORS: Guseva, L. N., Nikonov, A. G.

TITLE: Use of X-ray Structural Analysis for Investigation of Hardenability of Wheel Steel in Sliding Friction (Primeneniye rentgenostrukturnogo analiza dlya issledovaniya zakalivayemosti kolesnoy stali pri trenii skol'zheniya)

PERIODICAL: Tr. In-ta metallurgii, AN SSSR, 1957, Nr 1, pp 120-123

ABSTRACT: One of the most common defects on the contact surface of railroad wheels is the flat spot due to braking action. The formation of flat spots is the result of excessive heating at the point of contact between the wheel and the rail when moving with brakes locked, the heating being followed by subsequent rapid escape of heat within the rim. In the heating zone, a hard and brittle work-hardened crust up to 3 mm in thickness, that is discolored as the wheel continues in use, comes into being. In order to reproduce the hardened layer forming at the surface of a wheel under sliding friction for purposes of laboratory reproduction and investigation, a special machine was designed. Determination of hardenability under various conditions of heat

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137-58-1-1248

Use of X-ray Structural Analysis (cont.)

treatment was performed by evaluating the shift of line (011) or comparing the width of x-ray lines (110) - (011) of the test specimens of carbon and wheel steel against the width of the lines of standard specimens (S) of carbon steel hardened to martensite, and by measuring the microhardness of the surface of the S. It was found that in the S of wheel steel of the various chemical compositions investigated, and in the area of the flat spots due to braking, products of austenite transformation are present due to rapid cooling at close to the critical rate. The tendency of the steel of the grades investigated to harden under conditions of sliding friction varies and may be determined by the width of the interference lines (110) - (011). The S revealing the greatest hardness also presented the greatest expansion of the lines (011). The width of the x-ray lines obtained in the S of wheel steel investigated and S from zones with flat spots due to braking on an operational wheel were greater than the width of lines of hardened standard S, which is due to the change in the structure of the crystal lattice arising out of the special conditions of hardening.

N. T.

1. Steel--Structural analysis 2. X-ray--Applications 3. Steel--Heat treatment

Card 2/2

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

Guseva, L.N.

AUTHORS: Ageyev, N.V., Guseva, L.N. and Markovich, K.P. (Moscow).

TITLE: Phase transformations in chromium rich, Cr-Mo-Fe alloys. (Fazovye prevrashcheniya v splavakh khrom-molibden-zhelezo, bogatykh khromom). 24-4-4/34

PERIODICAL: "Izv. Ak. Nauk, Otd. Tekh. Nauk" (Bulletin of the Ac. Sc., Technical Sciences Section), 1957, No.4, pp.23-32 (USSR).

ABSTRACT: The kinetics of the disintegration of the solid solution of 60:25:15 type Cr-Mo-Fe alloys were investigated for chromium contents of 62 and 56 wt.% respectively. It was found that at 1050°C these alloys are in the range of the α-solid solution. At 950°C both alloys undergo decomposition of the solid solution accompanied by the separation of the σ-phase of the composition Cr(MoFe); this disintegration process brings about an increase in hardness of the alloys. At the temperatures 850 and 750°C the alloy containing 62% Cr is at the boundary of the α + (α + σ) phases. A decrease of the Cr concentration in the alloy to 56% leads to a disintegration of the solid solution at these temperatures. At 850°C the alloy gets hardened less than at 750°C; in the latter case a finely dispersed phase separates out during ageing. The kinetics of the disintegration of the solid solution of a 60:15:25 type alloy was investigated in the temperature range 1050-750°C; at all

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Phase transformations in chromium rich, Cr-Mo-Fe alloys, (Cont.) 24-4-4/34

the temperatures separation of the σ-phase from the solid solution was observed. Increases in hardness were observed at holding times up to twenty hours. After a 100 hr holding, the hardness of the alloys dropped. The volume of the solution during the disintegration of the alloys of both types changes very little, namely, within the limits of ± 0.002 kX. Comparison of the kinetics of disintegration of the solid solutions type 60:25:15 and 60:15:25 leads to the conclusion that the speed of the diffusion process increases in the case of substitution in these alloys of iron for molybdenum. The high speed of the diffusion process in the 60:15:25 type alloys and their coarse grain crystalline heterophase structure at temperatures below 1000°C should lead to a deterioration of their heat resistant properties. The kinetics were studied of the ageing of a 60:25:15 alloy containing 0.07% C, 2.5% Si, 1.5% Al. It was established that in addition to the σ-phase in the temperature range 950 - 750°C a finely dispersed phase rich in Mo is separated in the alloy which is probably attributable to carbides of the type $M_{23}C_6$; dehardening of the alloy during ageing after holding times exceeding 50 hours, is due to coagulations of this phase. Separation of the

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Phase transformations in chromium rich, Cr-Mo-Fe alloys. (Cont.) 24-4-4/34

carbide phase from the solid solution leads to considerable decreases of the lattice constant of the solid solution. Introduction of titanium as an alloying element into 60:25:15 type alloys leads to an increased hardness in the temperature range 1050-750°C and no dehardening was observed in the case of long duration ageing (up to 1000 hours). Investigation of the ageing of deformed alloys of the type 60:25:15 both alloyed and non-alloyed showed that introduction of titanium reduces their speed of diffusion process. The composition in wt.% of the tested specimens is given in a small table, p.23.

There are 23 figures including graphs, micro-photographs and radiographs. There are 4 American, 1 English and 1 German references.

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SUBMITTED: August 6, 1956.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

AUTHORS: Guseva, L. N. and Ovechkin, B. I. (Moscow). 24-6-5/24

TITLE: A study of chromium-silicon alloys rich in chromium. (Issledovaniye splavov khroma s kremniyem, bogatykh kromom).

PERIODICAL: "Izvestiya Akademii Nauk, Otdeleniye Tekhnicheskikh Nauk" (Bulletin of the Ac.Sc., Technical Sciences Section), 1957, No.6, pp.27-31 (U.S.S.R.)

ABSTRACT: Studies of Cr-Si alloys have been reported in refs.1 to 5. In the present work the region of phase diagram rich in chromium (up to 35% Si) was investigated. 99.8% pure silicon and electrolytic refined chromium were used. The solubility of Si in Cr was determined by smelting the alloy in an argon atmosphere in an arc furnace. Before smelting, the specimens were pressed and sintered at a temperature of 900 C in a vacuum. For alloys containing more than 8% of Si, the smelting was carried out in a high frequency furnace in corundum crucibles under barium chloride. Table 1 shows the chemical and phase composition of the alloys investigated (First column: number of alloy. Second column: wt. % Si, based on the charge. Third column: wt.% Si, based on chemical analysis. Fourth column: phase composition). Homogenising treatment was carried out in a vacuum, in quartz ampules, at 1200 C for 120 hours, after which the alloys were

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A study of chromium-silicon alloys rich in chromium.(Cont.)

cooled down slowly. The study was carried out by X-ray (powder) and microstructure analyses. The solubility of Si in Cr is shown in Fig.1 (q - wt.% Si and α - solid solution of Si in Cr). Cast alloys containing up to 3.5% Si have a single-phase structure. Higher Si content leads to the appearance of a second phase in the process of crystallisation (Figs. 2 and 3). Phase X-ray analysis showed that Cr_3Si is evolved out of the solid solution. With hardening above 1100 C the amount of the surplus phase increases, Fig.6. After holding the specimens at 800 C a single-phase structure was found only in alloys having 1.5% Si. The introduction of Si into the Cr lattice leads to a decrease in the constant of the latter from 2.881 for pure chromium to 2.877 for solid solution containing 4.5% Si (hardened at 1350 C). The alloy to Cr_3Si. Between 10% Si and 24.5% Si, in addition to the Cr_3Si line, lines of a new phase, x, were observed. The intensity of these lines increases as the Si content is increased. While, at the same time, the intensity of the Cr_3Si lines decreases. The Cr_3Si phase is absent in the 24.6% Si alloy. In 26.3% Si alloy, in addition to lines

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A study of chromium-silicon alloys rich in chromium.(Cont.)

of the x-phase, one observes CrSi lines (Fig.7). Results of X-ray analysis are supported by micro-structure studies, Fig.8. Primary evolution of Cr_3Si and secondary evolution of the x-phase are seen in the 17% Si alloy (Fig.8a). As the silicon content increases, the amount of this phase increases. The alloy containing 20% Si, which corresponds to the stoichiometric relation for Cr_2Si, still contains a considerable amount of Cr_3Si, Fig.8b. At the same time, the character of the structure remains unchanged. The 24.5% Si alloy has a microstructure near to the single-phase type, Fig. 8 c. Further increase in Si content leads to a primary evolution of the x-phase and the eutectic composition x + CrSi.

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There are 8 figures and 2 tables and 5 references, one of which is Slavic.

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

GUSEVA, L.N.

46. Semiconductor Properties of Chromium Silicides Investigated

"The Thermoelectric Properties of Chromium Silicides," by L. N. Guseva and B. I. Ovechkin, Institute of Metallurgy imeni A. A. Baykov, Academy of Sciences USSR, Doklady Akademii Nauk SSSR, Vol 112, No 4, 1 Feb 57, pp 681-683

The preparation of chromium silicides is described. Investigation of the electrical and thermoelectric properties of these silicides showed that the compounds Cr_3Si, Cr_5Si_3, and CrSi exhibit conductivity of the metallic type, whereas the compound $CrSi_2$ is a simiconductor with an energy of activation equal to about 1.3 electron-volts. (U)

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

AUTHOR GUSEVA L.N.

PA - 3145

TITLE Atomic Scattering of X-rays in Copper-Zinc Alloys.
(Atomnoye rasseyaniye rentgenovskikh luchey v splavakh medi s tsinkom-Russian)

PERIODICAL Doklady Akademii Nauk SSSR, 1957, Vol 113, Nr 3, pp 567-570 (U.S.S.R.)

Received 6/1957 Reviewed 7/1957

ABSTRACT Extinction quantities were compared with the reflections of pure copper by means of the exchange method. This makes it possible to obtain two independent interference images at equal conditions. The powders, which were subjected to heat treatment, were investigated by the photographic, and the deformed powders by the ionization method. Investigation extended to alloys with 0,5, 10, and 50 weight%. As initial substances electrolytic metals were used. It is shown that in alloys the intensity of reflection increases with an increase of the concentration of solid solutions, but that the intensity of the lines remains nearly unchanged, whereas the intensity of higher reflexes diminishes considerably with an increase of the angle of reflection in comparison to the intensity of the corresponding copper lines. The modification of the interference maxima showed that the case of copper and a 10% Zn alloy the broadening of the lines in the case of deformation was different. All lines of the solid solution are broader than the corresponding lines of pure copper. It is shown that the distortions of the crystall lattice are anisotropic in character on the occasion of deformation. This might be connected with the formation of domains of coherent dispersion having unequal axes, as well as with the anisotropic modification of the

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Atomic Scattering of X-rays in Copper-Zinc Alloys. PA - 3145

distances between the planes in this process. It is shown that with a rise of temperature by annealing the intensity of the reflection of higher-reflexes of the alloy rises, but that after annealing at 600° the intensity of all reflexes of the solid solution becomes equal to the intensity of the corresponding reflexes of copper. When filling a 50% Zn alloy a considerable broadening of all lines was observed, on which occasion the anisotropic character of the distortions of the crystall laticce were very marked. A table shows the relative intensitfes of the reflections of the alloy after resting and annealing.
(With 2 illustrations, 4 tables, and 1 Slavic reference)

ASSOCIATION Institute for Metallurgy"A.A.BAYKOV'S" of the Academy of Science of the
PRESENTED BY URAZOV G.G., Member of the Academy U.S.S.R.
SUBMITTED 18.5.1956
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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

24-58-3-16/38

AUTHORS: Guseva, L.N., Ovechkin, B.I. (Moscow)

TITLE: The Properties of the β-phase of the Ni-Al System (Svoystva beta-fazy sistemy nikel'-alyuminiy)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 3, pp 118-119 (USSR)

ABSTRACT: An investigation of the properties of alloys on the basis of their composition gives an insight into a peculiar structure of this phase which is within the limits of 45.25-60% atomic per cent Ni. Electrical properties of this phase were studied in earlier work of one of the authors (Ref.2). The variation of electrical resistance with the composition is shown in a graph (p.119). The curve is characteristic for solid solutions; an increase in concentration of the solid solution is accompanied by an increase of electrical resistance of the alloy. Later, Nikolayeva and Umanskiy (Ref.3) studied the characteristic temperature and microhardness of this phase. It was found that an alloy of stoichiometric composition has shown a higher microhardness than a solid solution on the same basis. The authors explain this change in hardness of the alloys by their characteristic temperature,

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The Properties of the β-phase of the Ni-Al System.

i.e. by their interatomic forces, which also decreased during transformation from a NiAl compound to a solid solution. However, these results are in contradiction with electrical conductivity data of such alloys. In this paper the hardness of alloys in this β-phase range is studied, using cast test specimens made from electrolytic Ni and 99.9% pure Al. The melting was done in a high frequency furnace. Homogenization annealing was carried out at 1200°C for 150 hours. Radiograms were obtained by means of an RKO camera with Co radiation. Microhardness was measured by means of a PMT-3 instrument with a load of 100 g and the macrohardness by the Vickers method with a load of 10 Kg using as an inductor a diamond pyramid. The results are entered in a table (p.119). X-ray phase analysis and microscopic examinations have shown that all alloys under the investigation had a one-phase structure. From the data obtained it is clear that alloys near to the stoichiometric composition show minimum hardness and minimum electrical resistance. On increasing the Ni or Al content from the stoichiometric ratio, both the hardness and the electrical resistance increase. Depending on their composition, such characteristic changes of the properties of the alloys may be related to the structure of the crystal lattice

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The Properties of the β-phase of the Ni-Al System.

of the solid solution. According to Bradley and Taylor (Ref.1) 1% of Ni in the Ni-Al compound is substituted by Al. Only if the Al content is high a structure defect will exist in the solid solution and particularly in this region of concentration there will be an increase in the speed of changes of the properties. This is in agreement with the changes in the lattice constant of the solid solution as a function of its concentration (see graph p.119). The decrease of the characteristic temperature of solid solutions observed by Nikolayeva and Umanskiy (Ref.3) is not in contradiction with obtained data on the hardness of alloys, since the hardness, measured by applying pressure to an inductor, is defined not only by the interatomic forces in the crystal lattice but also by the structural changes taking place in the alloys during their plastic deformation. There are 1 table, 1 figure and 2 Soviet and 1 English reference. (Almost complete translation, except for the figure and table captions).

SUBMITTED: October 3, 1957.

Card 3/3 1. Alloys--Properties

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9"

"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

AUTHOR: Guseva, L. N., Babareko, A.A. SOV/[illegible]

TITLE: The Distortions of the Crystal Structure of Copper and Its Solid Solutions by Deformation (Iskazheniya kristallicheskoy struktury medi i yeye tverdykh rastvorov pri deformatsii)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 120, No. 3, pp.518-520 (USSR)

ABSTRACT: In a previous paper by L. N. Guseva (Ref 1) it was found that a certain less thermal treatment is necessary for the suppression of the effects of deformation in copper and its alloys. The reason for this may be the inhomogeneous states after filing. It was interesting, in these objects, to study the changes of the crystalline fine structure caused by plastic deformation. The broadening of the X-ray interference maxima of the metals during deformation served the purpose of estimating structural distortions. A table contains the widths measured at half the height of the maxima. The broadening of reflexions at one and the same degree of deformation is greater in both of the solid solutions under investigation than in pure copper. This difference is all the more important the

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"APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617610010-9

The Distortions of the Crystal Structure of Copper and Its Solid Solutions by Deformation

higher the concentration of the solid solution and the greater the difference in the atomic dimensions of the components of the alloys. In one and the same alloy filing widens reflexes considerably. The second table contains the values of the true width of the reflexes (111) and (222) by the powders of copper and its solid solutions. The microtensions in pure copper (which was filed at a low temperature) as well as in alloys with 10 % Zn and 4,6 % Al were similar to each other. Various details are given. The domains of the coherent scattering are smaller in the alloys than in pure copper. The difference in the behavior of copper and of the solid solutions during annealing can be explained by the influence exercised by the characteristic features of substructure upon the growth of the crystallites. There are 2 tables and 8 references, 7 of which are Soviet.

ASSOCIATION: Institut metallurgii im. A. A. Baykova Akademii nauk SSSR (Metallurgical Institute imeni A. A. Baykov, AS USSR)

PRESENTED BY: December 7, 1957, by I. P. Bardin, Member, Academy of Sciences, USSR

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SOV/20-120-3-22/67

The Distortions of the Crystal Structure of Copper and Its Solid Solutions by Deformation

SUBMITTED: December 3, 1957

1. Copper--Crystal structure 2. Copper alloys--Crystal structures
3. Copper--Deformation 4. Copper alloys--Deformation

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VOL, Abram Yevgen'yevich; AGEYEV, N.V., red.; ABRIKOSOV, N.Kh., doktor tekhn.nauk, red.; KORNILOV, I.I., red.; SAVITSKIY, Ye.M., red.; OSIPOV, K.A., doktor tekhn.nauk, red.; GUSEVA, L.N., kand.khim. nauk, red.; MIRGALOVSKAYA, M.S., kand.khim.nauk, red.; SHKLOVSKAYA, I.Yu., red.; MURASHOVA, N.Ya., tekhn.red.

[Structure and properties of binary metal systems] Stroenie i svoistva dvoinykh metallicheskikh sistem. Pod rukovodstvom N.V.Ageeva. Moskva, Gos.izd-vo fiziko-matem.lit-ry. Vol.1. [Physicochemical properties of elements; nitrogen, actinium, aluminum, americium, barium, beryllium, and boron systems] Fiziko-khimicheskie svoistva elementov; Sistemy azota, aktiniia, aliuminiia, ameritsiia, bariia, berilliia, bora. 1959. 755 p. (MIRA 13:3)

1. Chlen-korrespondent AN SSSR (for Ageyev).
(Metals) (Phase rule and equilibrium)

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SOV/180-59-2-14/34

AUTHORS: Guseva, L.N., and Ovechkin, B.I. (Moscow)

TITLE: Atomic Scattering of X-Rays on Solid Solutions of Copper with Nickel (Atomnoye rasseyaniye rentgenovykh luchey na tverdykh rastvorakh medi s nikelem)

PERIODICAL: Izvestiya akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1959, Nr 2, pp 82-85 (USSR)

ABSTRACT: The authors have measured the intensity of the diffraction spectra of copper-nickel alloys to study the deviation of the atomic scattering function from additivity. Specimens were prepared by melting the electrolytic metals, homogenizing at 900 °C for eight days in vacuum and filing to pass through a 300-mesh sieve. Before screening the filings were heat treated to remove stresses. The investigation was effected with copper filtered radiation, with photometry of the diagrams on a type MF-4 microphotometer. To allow for the influence of the thermal factor on reflection intensity the alloy characteristic temperature was determined to an accuracy of ± 6% by obtaining diffraction spectra at two temperatures (22 and -135 °C) in a RKD camera with a special cover. Condensation

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